**zTopic 1**

**[November 2019]**

**a). You need to choose which type of methodology would be the most suitable to use to analyse the information system at *Techno Wearables*. Describe FOUR (4) factors that you will consider when making your choice.** **4**

* Whether technical aspects should be focused on/if a hard approach would be appropriate
* Whether human aspects/user needs should be focused on/if a soft approach would be appropriate
* Whether a combination of technical and human aspects/combined method would be appropriate
* The complexity of the current information system
* The complexity of the human aspects/user needs
* The advantages of each method
* The disadvantages of each method
* The appropriateness of each method
* The costs associated with each method
* The delivery time associated with each method
* The size and complexity of the company

b**). If you use hard systems methodology to analyse the information system you will need to refer to the system development life cycle (SDLC). Identify THREE (3) steps of the *SDLC* that you will work on and explain the purpose of each step that you have identified.** **6**

Feasibility

* Determines whether a project is technically/financially/socially feasible/determines whether the project is cost-effective/a costs benefits analysis

Planning

* Initial investigation/scope/objectives/solutions/requirements

Analysis and requirements

* Defines the system requirements/end user requirements

Design

* Software/hardware/operational/required features/coding

Testing

* Bugs/errors/various techniques/test plan

Implementation

* Introduction of the system/pilot/parallel/direct changeover

***Maintenance***

* On-going evaluation/maintenance/schedules

**a). When you gather information at *Techno Wearables* you could use a number of fact-finding methods. Identify FIVE (5) fact finding methods and for each method that you have identified suggest ONE (1) *disadvantage* of using it.**

Interview

* It is a time-consuming method/interviewees might be unavailable/quality of data may depend on the skills of the interviewer/the interviewer may be biased/leading questions/data will need to be documented, may need to be done post-interview/may be expensive to undertake (1 mark)

Observation

* Opinions cannot be observed/it is a time-consuming method/a solution to an identified problem cannot be obtained just by observation/staff might feel uncomfortable if they are observed/users may respond differently if observed/an observer might get in the way of staff, distract users/some staff may be nervous and make errors that they would not normally make/it is not always an efficient method for capturing quantitative data for analysis (1 mark)

Questionnaire/survey

* May be expensive to undertake/may not be returned/may be incomplete/may lack validity/staff may misinterpret questions/not all aspects may have been covered in the questions (1 mark)

Focus group

* Staff may not express their opinions/may be expensive to undertake/there may be bias by the facilitator/may be inaccurate results due to bias

Documentation

* May be unavailable/may be time consuming/may be incomplete/may be out of date (1 mark)

**[Sept 2019]**

**a). Describe THREE (3) work-related characteristics of staff at the council who use the interface of the information system. 3**

* Skills
* Knowledge of their jobs
* Knowledge of their employer
* Familiarity with/understanding of their tasks
* Expertise levels
* Qualifications/levels of education
* Positions in the council

**b). If the new information system interface is designed efficiently it could bring a number of advantages to the council. Outline FOUR (4) advantages. 4**

* It could facilitate productivity
* It could contribute to job satisfaction
* It could reduce training costs
* It could reduce maintenance costs
* It could prevent user errors

**c). Identify THREE (3) examples that would demonstrate that a user can interact successfully with the interface of the council’s information system. 3**

* They find it easy to use the interface
* They make few errors
* They understand feedback
* Interaction is satisfying/engaging/enjoyable
* They are motivated to use the interface

**[June 2019]**

**a). Explain how analysis of the information system at Urban Delivery Services could be undertaken more effectively if a soft systems approach to information system analysis is used. Your answer should be supported by FIVE(5) points. 5**

* It would facilitate analysis that focused on people/human factors/social factors
* It would consider user interaction as important as technical issues
* It would enable human activity to be modelled
* It would facilitate discussion of issues/perceptions/requirements
* It would enable different perspectives/opinions/contributions to be voiced
* It would facilitate joint problem solving/sharing of ideas
* It would enable users to participate/feel involved in the development of the information system
* It would facilitate collaboration between the various sectors of the company

**b). Describe FIVE(5) problems that could arise if a decision is taken to use a soft systems approach to analysis. 5**

* It could take longer to analyse the information system
* It could cost more to analyse the information system
* It could take longer for staff involved in the analysis to agree
* It could be difficult to manage this analysis technique
* The lack of a structured approach could cause issues
* Important technical issues could be overlooked
* Some staff might not take this analysis technique seriously

**a). Information gathering methods, for example, the use of interviews, can be used during analysis. Discuss FOUR(4) advantages of using interviews during information systems analysis at Urban Delivery Services. 4**

* Direct method of collecting information
* Allows detailed questions to be asked
* Opinions, feelings and perceptions can be offered
* Problems can be identified
* Can aid in-depth understanding
* Useful if no documentary evidence is available
* Can facilitate in-depth fact finding
* Adds a human dimension
* Interviewer can offer explanations
* Ambiguities can be clarified
* Can achieve a high response rate

**b). Describe THREE(3) disadvantages of using interviews while undertaking analysis at the company. 3**

* Time-consuming method
* Interviewees might be unavailable
* Quality of data depend on the skills of the interviewer
* Interviewer may be biased/leading questions
* Data will need to be documented, might need to be done post-interview
* Can be more expensive than other methods

**c). Identify THREE(3) other information gathering methods that could be used at the company. 3**

* Questionnaires/surveys
* Focus groups
* Observation
* Documentation

**a). Describe FIVE(5) pieces of information that could be discovered about tasks that are undertaken by staff Urban Delivery Services if task analysis is undertaken. 5**

* Task workflow
* Distribution of work
* A user’s work skills
* Frequency of use of technology
* The order in which tasks are performed
* An accurate alternative answer

**b). Outline FIVE(5) features that the interface of the information system at Urban Delivery Services should provide to ensure that staff can use it without any problems.**

* It is user friendly/easy to learn/easy to use/intuitive
* It provides clear, simple features/instructions
* It provides instant feedback/clear feedback
* It offers guided actions
* It is accessible
* It is consistent
* It is reliable
* User demographics have been considered

**[March 2019]**

1. **Explain the purpose of producing root definitions for the clinic managers. 4**

* A Primary task root definition will clarify system processes
* Provides an example of a system process.
* An issue-based root definition will clarify system problems
* Provides an example of a system process.

1. **Construct a conceptual model for the clinic managers. Use the information provided in the introduction to Question 1 to assist you. 6**

Diagrams will vary but should illustrate at least 6 of the following

* A potential system
* Desired outcomes
* Potential functions
* Potential/processes
* Potential activities
* Potential relationships
* Potential dependencies
* Solutions to problems/issues

**a). You are going to analyse the tasks undertaken by the information system’s users. Explain FOUR (4) items of information that you expect to discover. 4**

* Various aspects of the tasks
* Workflow of the tasks
* Distribution of work
* User’s work skills
* Frequency of using technology
* Order in which the tasks are performed

**b). Identify TWO (2) fact-finding methods that you could use to undertake task analysis and for each method describe TWO (2) advantages of using it. 6**

**[June 2018]**

**a). One of the purposes of PEST is to determine social influences on the development of the information system at *MAS*. Explain THREE (3) other influences that you could uncover. 3**

* To determine economic influences
* To determine political influences
* To determine technological influences

**b). Identify FOUR (4) negative influences that the economy might have on the development of the information system at *MAS.*** **4**

* Interest rates
* Exchange rates
* Taxation issues
* International financial issues
* Recession
* Demand
* Supply
* Market growth
* Market decline
* The labour market
* Government policies and regulations

**c). Recommend THREE (3) solutions that could be used to overcome negative influences of the economy on the information system at *MAS*. 3**

* Identified problem/issues should be documented
* A requirements specification that details the problems/issues should be produced
* A requirements specification should document solutions and/or recommendations
* Agreement should be reached between the systems analyst and the organisation’s stakeholders that the solutions and/or recommendations are feasible
* A requirements specification should be produced that documents the negative economic influences
* The requirements specification should identify solutions to the negative economic influences
* The identified solutions should be agreed to be feasible
* The strengths at MAS should be analysed and documented
* Opportunities within MAS should be analysed/documented

**[June 2018] Question 9**

**You are required to undertake the analysis of the information system users at *MAS*. Outline FOUR (4) work related characteristics that you expect to discover about the users. 4**

* A user’s organisation-specific knowledge
* Their familiarity with the requirements of a task
* How frequently they use the information system
* Their expertise level/novice/experienced
* Their familiarity with specific hardware and software
* Their technology skills/high level technology skills/low level technology skills

**b). There is a range of fact finding methods that you can choose from when gathering information about the interface of the information system at *MAS*. Identify TWO (2) types of fact finding methods.**

* Interview
* Observation
* Questionnaire/survey
* Focus group
* Documentation

**c). State TWO (2) limitations of using each type of fact finding method that you identified in   
 Question 9 b). 10**

* Interview - it is a time-consuming method/interviewees might be unavailable/quality of data may depend on the skills of the interviewer/the interviewer may be biased/leading questions/data will need to be documented, may need to be done post-interview/may be expensive to undertake
* Observation – opinions cannot be observed/it is a time-consuming method/a solution to an identified problem cannot be obtained just by observation/staff might feel uncomfortable if they are observed/users may respond differently if observed/an observer might get in the way of staff, distract users/some staff may be nervous and make errors that they would not normally make/it is not always an efficient method for capturing quantitative data for analysis
* Questionnaire/survey – may be expensive to undertake/may not be returned/may be incomplete/may lack validity/staff may misinterpret questions/not all aspects may have been covered in the questions
* Focus group – staff may not express their opinions/may be expensive to undertake/there may be bias by the facilitator/may be inaccurate results due to bias
* Documentation – may be unavailable/may be time consuming/may be incomplete/may be out of date

**Question 10[June 2018]**

**a). You are going to undertake an analysis of the users who use the information system at *MAS.* Explain why the analysis will help to improve the interface of the information system and support your answer with FIVE (5) points.** **5**

* It will help facilitate a design that is appropriate for a user’s age group
* It will help facilitate a design that is appropriate for a user’s gender
* It will help facilitate a design that is appropriate for a user’s level of education
* It will help facilitate a design that is appropriate for a user’s position
* It will help facilitate a design that is appropriate for a user’s cultural background
* It will help facilitate a design that is appropriate for a user who has accessibility requirements
* It will help facilitate a design that is appropriate for a user’s technology training and knowledge
* It will help facilitate a design that is appropriate for a user’s experience with a similar systems/product

**b). Outline FIVE (5) potential problems that might occur if analysis of the information system’s users is undertaken.** **5**

* It will only be effective if accurate information is gathered/analysed
* It will only be effective if sufficient information is gathered/analysed
* A non-representative set of users might be sampled
* Different groups of users might have different needs
* A combination of needs of different groups of users might be merged into a single group of users
* The needs of all users might not be met

**[March 218]**

**a). It is important that the interface of *Urban Water Call Centre’s* information system meets the needs of the staff who use it. Explain FOUR (4) issues that need to be considered when analysing the existing interface and recommending improvements for its design.** **4**

* The interface should be efficient
* It should be reliable
* It should be user friendly
* It should be accessible/appropriate for all of its users
* It should be helpful/provide feedback
* It should be consistent
* Colour/font/sound should be appropriate
* It should be robust
* It should be secure

**b). A variety of informal evaluation methods could be used to assess the information system’s interface. Identify THREE (3) types of informal evaluation methods and state one feature of each type that you have identified.**  **6**

* Heuristic evaluation – a usability expert/s evaluates a user interface of a product
* Cognitive walkthrough – an evaluator/s works through a series of tasks/asks questions from a user’s perspective/analyses the learnability of a system.
* Predictive modelling – outcomes are predicted by data mining/historical and current data is analysed and statistical models are created that can be used to predict outcomes
* Guidelines review – an analysis of an interface evaluates whether or not design requirements have been met/conforms to design guidelines
* Consistency inspection – an analysis an interface which inspects if there is consistency in display and functionality
* Critical event analysis – analysis of critical incidents which are caused by usability problems/design issues in an interface/users describe problems which they have experienced
* Dialogue error analysis – strengths, weaknesses, issues of dialogue design are determined/analysed
* Usability testing - problems faced by a user as they use an interface are identified/an interface’s usability is measured/analysed
* Interface users are observed interacting with an interface
* Expert reviews – evaluate the design of a user interface/determine usability issues/problems

**2.a) Describe FOUR (4) aspects of tasks undertaken at Urban Water Call Centre that you could determine if you perform task analysis.**  **4**

* Various aspects of tasks
* The workflow of task
* Distribution of work
* User’s work skills
* Frequency of use of technology
* The order in which tasks are performed

**b). You will need to collect a considerable amount of information from staff at the Urban Water Call Centre. Identify THREE (3) fact-finding methods that you will use and describe ONE (1) advantage for each of the three methods that you identify. 6**

* Interview a considerable amount of information can be collected/information from several sources at different levels can be collected/a rapport can be established with the interviewee/questions can be clarified/ information collected from other sources can often be verified/problems can be uncovered that might otherwise not be discovered/leads can be obtained for collecting further information.
* Observation can improve interviewer understanding of the working environment/validates data gathered from other sources
* Questionnaire/survey can be answered when convenient for the interviewee/a large number of people can be contacted/easier to administer, document.
* Focus group questions can be clarified/can be used to gather data from several sources at one time/a range of responses can be collected.
* Documentation can clarify understanding/not intrusive/ inexpensive/good source of background information/may provide information not accessible by other information collection methods/convenient.

[June 2018]

***Metropolis Accommodation Services (MAS)* provides an accommodation service for almost 20,000 tourists that visit London each year. The company aims to provide tourists with high quality accommodation during their vacation.**

**The CEO wants to update the current information system at *MAS* in order to ensure that tourists are offered the best possible service. You have been asked to undertake analysis of the information system and to provide advice to the CEO on various aspects of the analysis.**

**a). As part of your analysis of the information system at *MAS*, you will undertake a cost benefits analysis. Explain the aim of a cost benefits analysis and support your answer with FOUR (4) points. 4**

* To determine the benefits of a new/improved information system
* To determine the costs of a new/improved system
* To facilitate tangible factors of an information system to be determined and documented
* To facilitate intangible factors of an information system to be determined and documented
* To compare the costs and benefits
* To determine whether the benefits of a new/improved information system will outweigh the costs of a new/improved information system

b). **Outline SIX (6) items of information that you would expect to include in a cost benefits analysis report. 6**

* Information on hardware costs
* Information on software costs
* Information on system development costs
* Information on staff training costs
* Information on operational costs
* Information on system maintenance costs
* Benefits of Increased efficiency/accuracy in data processing/input/output/
* Benefits of improved service
* Benefits of improved tourist satisfaction
* Benefits of improved reliability
* Benefits of improved accuracy
* Benefits of improved security
* Benefits of improved communication

**1. [September 2017] There are a number of different phases of the systems development lifecycle that a systems analyst needs to work through. Identify THREE (3) phases. Explain the purpose of each phase that you have identified. 6**

**[June 2016] Identify THREE (3) phases of the systems development lifecycle. 3**

* Planning - identify requirements, analyses, documents and priorities the needs of a new/upgraded information system
* Analysis - survey and structure the requirements of an information system
* Design - convert the recommended solution of the analysis into a new/upgraded information system
* Implementation - code, test, evaluate and install the new/upgraded information system
* Maintenance - upgrade and develop the information system

**2. [September 2017] Outline FOUR (4) items of information that are documented in a cost benefit analysis report.**

**4**

**[March 2016] State FOUR (4) reasons why cost benefits analysis is undertaken. 4**

* The cost of new/upgrade information system
* The benefits of a new/updated information system
* A comparison of the costs and benefits
* A review of whether or not the benefits of developing an information system outweigh the costs of development

**3. [September 2017] Outline THREE (3) factors that a system analyst needs to consider when choosing a methodology to perform information system analysis. 3**

* The approach to analysis that a methodology takes, e.g. hard soft/process oriented/people oriented/combined
* A highly structured approach or a more flexible approach
* The time it will take to work through
* The cost associated with an approach, e.g. if it takes longer to work through it could prove more expensive
* If social/political/cultural issues need to be considered

**4. [September 2017] Explain the meaning of the term soft approach to information systems analysis and outline TWO (2) key differences between a soft approach and a hard approach. You should support your answer by identifying a situation in which it is appropriate to use a soft approach and a situation in which it is appropriate to use a hard approach. 7**

**Accurate Definition**

* It facilitates a people-focused analysis/it considers the human factors in an organization
* Regarding a soft approach
* It clarifies problem areas in a system.
* It provides an overview of a system.
* It enables human activity to be modelled.
* It facilitates open discussion of problems/perceptions/needs.
* It enables different perspectives.
* It facilitates joint problem solving.
* It enables user participation/commitment.
* Regarding a hard approach
* It is a highly structured approach
* All procedures associated with each step/stage must be undertaken
* It facilitates thorough planning
* It focuses on technical considerations
* Appropriate to use a soft approach
* When the participation of stakeholders/employees is required
* When analysing human relationships/interdependencies/complex human issues/problems/concerns
* When analysing a system that requires user, social, political and cultural issues to be taken into account
* Appropriate to use a hard approach
* When analysing complex processes/functions
* For analysis of a complex system in a large organisation

**5. [March 2017] Suggest THREE (3) reasons why an organisation may need to improve its information system.**

**3**

**[March 2016] Briefly explain THREE (3) potential benefits to an organisation when it updates its information system. 3**

**[Sample 2015] Identify THREE (3) aims of an information system. 3**

* To improve efficiency/productivity | The system is more efficient
* For financial reasons
* To improve its usability | The system is more user friendly
* To improve its reliability | The system is more reliable
* To improve its security | The system is more secure
* To improve operational activities | Productivity is improve
* To improve the morale of its users

**6. [June 2017] A systems analyst has produced a technical feasibility report. Describe briefly THREE (3) items of information documented in this report.**  **3**

* Types of technology in use at an organisation
* Are current technology resources suitable to undertake a project
* Potential types of technology to be used in an organisation
* Cost of current technology/cost of potential technology
* Constraints on technology/incompatibility of technology
* Staff skills – current skills/are they up-to-date/would training be required for using new technology
* Cost of staff training
* Current work practices/procedures
* Estimation of timescales for a new system/realistic timescale
* Expected growth/demands on the current system
* Licensing agreements/costs

**7. [Dec 2016] State THREE (3) items contained in a requirements specification for an information system. 3**

* Details of the functional requirements of the system, for example, the interactions between the users and software
* Details of the non-functional requirements, for example, the quality standards
* The structure of how the information system is organised
* The system functions
* The system processes
* The user requirements
* The performance requirements
* The hardware requirements

**8. [Sept 2016] Identify THREE (3) types of feasibility report that would help analyse an information system. 3**

* Economic/financial feasibility report
* Legal feasibility report
* Social/cultural feasibility report
* Technical feasibility report

**9. [June 2016] State THREE (3) methods that can be used to gather information about an information system.(3)**

* Questionnaires
* Interviews
* Observations
* Documentation
* Surveys
* Focus groups

**Topic 2**

**[Sept 2019]**

**Two methods, a hard approach or a soft approach, could be used to analyse the information system at *Central Metro Council.* Explain the differences between a hard approach and a soft approach to analysis. Your answer should include FIVE (5) features of a hard approach and FIVE (5) features of a soft approach.**

**A hard approach**

* Enables thorough planning/scheduling
* Rules/guidelines/standards to be followed
* Focuses on technical requirements
* Highly structured approach/a logical sequence of steps/stages must be followed
* Procedures associated with each step/stage must be undertaken
* Progress can be measured by reference to the objectives defined for each step/stage
* Easier to manage than soft systems methods due to clearly defined project phases
* Can be undertaken in less time than other methods, e.g. soft analysis approach
* Can be less expensive than other methods, e.g. soft analysis approach
* Suitable for use at a large organization

***A soft approach***

* Provides an overview of an information system
* Clarifies problem areas in an information system
* Facilitates the identification of relationships in a system
* Recognises that user interaction is as important as technical considerations
* Facilitates open discussion of problems/perceptions/needs
* Enables different perspectives
* Facilitates joint problem solving
* Facilitates user participation/commitment
* Facilitates bringing sectors of an organisation together
* Flexible approach
* Facilitates human activity to be modelled
* People-focused analysis/analysis of human factors
* Analyses user interaction
* Analyses user issues
* Analyses social issues
* Analyses political issues
* Analyses cultural issues

**[June 2019]**

**a). Explain what is meant by a hard approach to information systems analysis. Your answer should be supported by FOUR(4) points. 4**

* Enables thorough planning/scheduling
* Rules/guidelines/standards to be followed
* Focuses on technical requirements
* Highly structured approach/a logical sequence of steps/stages must be followed
* Procedures associated with each step/stage must be undertaken
* Progress can be measured by reference to the objectives defined for each step/stage
* Easier to manage than soft systems methods due to clearly defined project phases
* Can be undertaken in less time than other methods, e.g. soft analysis approach
* Can be less expensive than other methods, e.g. soft analysis approach
* Suitable for use at a large organization/with large projects

**b). Identify THREE(3) types of methodologies that could be used if a hard approach to information systems analysis is undertaken at Urban Delivery Services. 3**

* Structured Systems Analysis and Design Methodology (SSADM)
* Agile
* Scrum
* Joint Application Design (JAD)
* Rapid Analysis and Design (RAD)
* Dynamic Systems Development Method (DSDM)

**c). Discuss THREE(3) items of information that should be documented in a technical feasibility report for Urban Delivery Services. 3**

* Types of technology in use at the company
* Whether current technology resources are suitable to undertake updating/development of the information system
* Potential types of technology that could be used
* Cost of current technology/cost of potential technology
* Constraints on technology/incompatibility of technology
* Staff skills – are they up-to-date/is training required for using new technology
* Cost of training staff
* Current work practices/procedures
* Estimation of timescales for a new system/realistic timescales
* Expected growth/demands on the current system
* Licensing agreements/costs

**[March 2019]**

**Explain why you would prefer to use a soft systems approach instead of a hard systems approach to analyse the information system at *The Body Restoration Centre*. Identify FOUR (4) advantages of a soft systems approach.** **4**

*Advantages of a soft system approach*

* People-focused analysis/analysis of human factors
* Analyses user interaction
* Analyses user issues
* Analyses social issues
* Analyses political issues
* Analyses cultural issues
* Provides an overview of an information system
* Clarifies problem areas in an information system
* Identifies relationships in an information system
* Recognises that user interaction is as important as technical considerations
* Open discussions regarding problems/perceptions/needs
* Different perspectives offered
* Joint problem solving/user participation/commitment
* A flexible approach
* Human activity is modelled

**[December 2018]**

Mango Mobile Systems is large and successful organization that manufacturers and sells mobile computing devices. It has been trading for five years but in the last six months, demand for its products has doubled.

Some staff have described the current information system used at the company as out of date, slow and prone to data loss and data corruption. It has recently suffered malware and denial of service attacks. Ifo service attacks. Its main competitor has recently invested in a new information system and this could lead to Mango Mobile Systems losing customers.

The managing director and the department managers agree that they need to update the information system as soon as possible. They need an information system that is more efficient, more reliable and very secure.

1. **Explain why it would be advantageous to use a hard systems approach to analyse the information system at Mango Mobile System. You Should support your answer with SIX(6) points. 6**

* Enables thorough planning/scheduling
* Rules/guidelines/standards to be followed
* Focuses on technical requirements. Highly structured approach/ a logical sequence of steps/stages must be followed
* Procedures associated with each step/stage must be undertaken
* Progress can be measured by reference to the objectives defined for each step/stage
* Easier to manage than soft systems methods due to clearly defined project phases
* It is likely to be undertaken quicker than other methods.eg. soft analysis approach
* It is likely to be less expensive than other methods. Eg soft analysis approach
* Useful for use at a large organization

1. **Identify TWO(2) stages of the systems development life cycle that you will work through if you use a hard systems approach and outline the purpose of each stage that you identify.**

**Feasibility**

Determines whether a project is technically/financially/socially feasible/determines whether the project is cost-effective/a costs benefits analysis

**Planning**

Initial investigation/scope/objectives/solutions/requirements

**Analysis and requirements**

Defines the system requirements/end user requirements

**Design**

Software/hardware/operational/required features/coding)

**Testing**

Bugs/errors/various techniques/test plan

**Implementation**

Introduction of the system/pilot/parallel/direct changeover

**Maintenance**

On-going evaluation/maintenance

The information system currently used at *Mango Mobile Systems* provides a number of business processes and functions. These processes and functions include: stock control; orders for components from suppliers that are used in the manufacture of the devices, customer orders, stock despatch, production of invoices and receipts, supplier payment processing and customer payment processing.

Data processed by the system includes: staff, customer and supplier information, stock information and supplier payment details.

The system is used by the following departments: Finance, Research and Development, Production; Quality Assurance, Logistics, Sales and Marketing, Administration, Human Resources, Technical Services, the warehouse and the reception.

1. **Construct a data flow diagram that illustrates the information system at the company. 10**

* The flow of data into the system
* The flow of data out of the system
* The flow of data within the system
* Accurate notation for data flows
* Data storage in the system for example: staff data/customer data/stock data/ supplier data/supplier payment data
* Accurate notation for data storage
* The system processes for example: stock control orders/customer orders/stock despatch/production of invoices/production of receipts/supplier payments/customer payments
* Accurate notation for system processes
* The system entities for example: staff/customers/suppliers
* Accurate notation for system entities

**1. [Dec 2017] Sail Away is an established, reputable and popular company that has provided sea cruise holidays for over 20 years. It receives very good reviews from most of its passengers, many of whom have booked several holidays with the company because they are pleased with the staff, facilities and prices. The Chief Executive Officer (CEO) wants to update the current information system.**

**a) You are deciding whether to use a hard systems approach to analyses the current information at Sail Away. Explain what is meant by a hard system approach. 2**

* Focuses on technical aspects/requirements
* Focuses on system activities
* Uses specific techniques/tools, e.g. data flow modelling
* Does not take into account user/social/political/cultural issues/it is not people-focused

**2. [Dec 2017] as part of your analysis, you will be producing a technical feasibility report. Outline FOUR items of information that you will include in this report. 4**

* Types of technology in use at Sail Away
* Whether current technology resources are suitable to undertake updating/development of the information system
* Potential types of technology that could be used
* Cost of current technology/cost of potential technology
* Constraints on technology/incompatibility of technology
* Staff skills – are they up-to-date/is training required for using new technology
* Cost of training staff
* Current work practices/procedures
* Estimation of timescales for a new system/realistic timescales
* Expected growth/demands on the current system
* Licensing agreements/costs

**3. [March 2017] Identify FOUR (4) aspects of an information system that are illustrated by a data flow diagram. 3**

* How a system works
* Input to a system
* Output from a system
* Interaction of processes

**4. [Dec 2017] Discuss why you might decide to take a hard systems approach to analysis. You should support your answer with FOUR (4) points. 4**

**[June 2017] A term of system analysts has decided to use a hard approach to analyses an organization’s information system. Suggest FOUR (4) reasons why they have decided to take this approach. 4**

**[March 2017] Outline THREE (3) advantages of taking a hard approach to information systems analysis. 3**

**[June 2016] Provide FOUR (4) reasons why a hard methodology should be used to perform the analysis of an information system. 4**

* A hard approach takes a highly structured approach to information system analysis
* It follows a logical sequence of steps
* It facilitates progress to be measured by referring to objectives that are defined for each step
* It adheres to rules, guidelines and standards
* It ensures thorough planning and scheduling
* It focues on the technology aspects of a system

**5. [June 2017] Various type of hard approach methodologies can be used to aid information system analysis. Identify THREE (3) types of hard approach methodology. 3**

* Structured Systems Analysis and Design Methodology (SSADM)
* Agile
* Joint Application Design (JAD)
* Rapid Analysis and Design (RAD)
* Scrum

**6. [Dec 2016] Describe THREE (3) disadvantages of using the waterfall model for information systems analysis.**

**3**

* Take longer to deliver
* non-flexible
* Making a change in a previous stage can cause a problem/s for subsequent phases
* Returning to a phase/s can be expensive

**7. [Sept 2016] Identify THREE (3) benefits of using a waterfall model when working through the systems development lifecycle (SDLC). 3**

* It is easy to understand
* It is easy to use
* It is easy to manage/project management is straightforward
* It is suitable for small, non-complex projects

**8. [March 2016] Identify THREE (3) characteristics of an information system that are illustrated in a data flow diagram. 3**

* External entities
* Processes
* Data flows
* Data stores

**9. [December 2017] Sail Away has an information system that deals with requests for information, room bookings, meal reservations, ticket production and invoices, cancellations and stock ordering, e.g. food and drinks. Passenger’s details are stored in a database and invoices for payment are issued from the database. Passengers access their room by using swipe cards, which are read by card readers located on each room door. There is also a stock database.**

**Produce a data flow diagram that illustrates the information system used at Sail Away. 10**

**Topic 3**

**[November 2019]**

**a). If you use soft systems methodology (SSM) to analyse the information system at *Techno Wearables* you will need to produce a root definition. Explain what is meant by a *root definition* and provide TWO (2) examples of root definitions for *Techno Wearables*.**

**Refer to the information provided in the Case Study.**

* A root definition clarifies system processes/aims of the system and clarifies system problems
* A primary task root definition

Examples of system processes, e.g. communication, administration, etc.

* An Issue based root definition. Examples of system problems, e.g. inefficiencies, lack of security, etc.

**b). Root definitions facilitate the construction of conceptual models. Explain**

**FOUR (4) types of information that you would illustrate in a *conceptual model* for *Techno Wearables*.**

* Information on the new information system
* Desired outcomes of the new information system
* Must have’ aspects of the new information system
* Potential functions of the new information system
* Potential/processes of the new information system
* Potential activities of the new information system
* Potential relationships of the new information system
* Potential dependencies of the new information system
* Solutions to problems regarding the old system

a). Object oriented analysis (OOA) could also be used during analysis at *Techno Wearables*. Differentiate between an OOA **and** a soft systems approach to analysis. **10**

***Object oriented analysis***

* If object oriented analysis is undertaken data and processes are combined into objects
* Object oriented analysis focuses on technical aspects of a system
* Object oriented analysis considers the relationships between objects, classes, etc.
* Tools used in object oriented analysis include functional models, activity models, etc.
* If object oriented analysis is undertaken the system could be developed more rapidly than if a soft systems approach is used
* If object oriented analysis is undertaken a system could be developed more cost effectively than if a soft systems approach is undertaken

***Soft systems methodology***

* If a soft systems approach is used data and processes are considered separately
* A soft systems approach focuses on user/people aspects of a system
* A soft systems approach considers wider issues in a social context such as the usability of a system, job satisfaction, the structure of an company
* Tools used in soft systems approach include rich pictures, root definitions, concept models
* It could take longer to analyse a system using a soft systems approach than if object oriented analysis is undertaken
* It could be more expensive to undertake a soft systems approach than to undertake object oriented analysis

**[Sept 2019]**

1. **Produce a rich picture for Cental Metro Council. 10**

* Staff
* Departments
* Customers – individuals, families, businesses
* Information system
* Processing – data
* Advertising
* Data – volume, inaccuracies
* Communication – need for, lack of
* Problems/issues/concerns
* Hardware, software, network issues
* Insecure system, malware
* Inefficiencies
* Symbols
* Pictures
* Connections
* Relationships
* Influences
* Roles
* ***Points of view/opinions***
* Expectations

**[March 2019]**

**Explain what is meant by a rich picture. 2**

* Rich picture is a diagram of the existing information system
* showing what is relevant to the day-to-day work at an organisation.
* Usually hand drawn (or other valid points).

**Explain why you will produce a rich picture when using a soft systems approach. 4**

* Aid understanding of the company/information system
* Offer a view of the whole system
* Illustrate structures
* Illustrate processes
* Illustrate issues/concerns
* Illustrate social and cultural roles/norms/values/attitudes
* Illustrate goals
* Illustrate political/power roles
* Illustrate patients/staff/suppliers
* Illustrate staff and their interactions
* Illustrate hardware and software resources
* Illustrate boundaries

**[Sept 2018]**

The Company’s information system processes requesets for tickets. The public can book tickets at each theatre, by telephone or via the company’s website. Personal data on staff, customers, performers and catering suppliers isprocessed and stored. The information system processes and stores data on customers payments, cancellations and refunds, payments ot performers, payments to catering suppliers and payments to the centre’s staff.

The informatin system needs to be updated and improved. It needs to be able to deal more effieiently with an increasing number of processing and adminstrative tasks. It also needs to be made more secure.

If you decide to use a soft approach to analyse the information sytem at City Entertainment Centre, you will need to produce a rich picture and a root definition. **8**

1. Produce a rich picture of *City Entertainment Centre*.

* Identification of the staff
* Identification of the customers
* Identification of performers
* Identification of suppliers
* Identification of Information system
* Identification of personal data of customers/staff/performers/suppliers
* Identification of financial data
* Identification of staff data
* Identification of administration data
* Identification of ticket bookings/in person/telephone/online
* Identification of ticket processing
* Identification of cancellations/refunds
* Identification of problems/issues/concerns
* Identification that aspects of the system are inefficient
* Identification that aspects of the system are Insecure
* Identification of staff roles/fears/opinions/expectations

b). There are two types of root definition. Identify ONE (1) type **and** state the purpose of it. **2**

* A primary task root definition
* it focuses on system processes.
* An issue-based root definition
* it focuses on system problems

**[March 2018]**

***Urban Water Call Centre* is a call centre for a major water company. It has recently been taken over by a new management team who want to make improvements to the company’s current information system. You have been asked to undertake an analysis of the information system and provide guidance on a number of issues. 2**

**a). You have been recommended to use a Soft Systems Methodology to undertake analysis of the information system at Urban Water Call Centre. Define what is meant by a Soft Systems Methodology.**

* It facilitates a people-focused analysis/it considers the human factors in an organisation
* considers user interaction
* It considers user issues
* It considers social issues
* It considers political issues
* It considers cultural issues

**b) Contrast THREE (3) benefits of using a Soft Systems Methodology with THREE (3) benefits of using a hard systems methodology. 6**

**soft systems methodology**

* It provides an overview of a system
* It clarifies problem areas in a system
* It facilitates the identification of relationships in a system
* It recognises that user interaction is as important as technical considerations
* It facilitates open discussion of problems/perceptions/needs
* It enables different perspectives
* It facilitates joint problem solving
* It facilitates user participation/commitment
* It facilitates bringing sectors of an organisation together
* It is a flexible approach
* It facilitates human activity to be modelled

**hard systems methodology**

* It facilitates thorough planning/scheduling
* It ensures that rules/guidelines/standards are adhered to It focuses on technical requirements/considerations
* It is a highly structured approach/a logical sequence of steps/stages must be followed
* All procedures associated with each step/stage must be undertaken
* Progress can be measured by reference to the objectives defined for each step/stage

**c) You will be using a number of techniques when using a Soft Systems Methodology and one technique is the construction of rich pictures and CATWOE. Identify TWO (2) other Soft Systems Methodology techniques.**

* Root definitions
* Primary task root definitions
* Issue-based root definitions
* Conceptual models
* PEST
* SWOT
* Stakeholder analysis
* ETHICS

**Question 2[June 2018]**

Large volumes of data are processed and stored by the information system used by the company. Data includes tourist names and contact details, the type of accommodation required and how long it is needed and the cost and details of the accommodation’s owners.

Bookings can be made and paid in advance in person, by telephone, by post or online.

Data is sometimes updated inaccurately, and this results in accommodation being double-booked. Enquiries, cancellations and complaints are not documented by the current information system. System security also needs to be improved. Some staff think that there needs to be improved communication between *MAS* and the accommodation providers and this would result in a more efficient and reliable information system. Some staff, however, are concerned that they might lose their jobs if the system becomes more efficient**.**

**a). Create a rich picture that illustrates the information system at MAS. 8**

***Diagrams will vary but should contain at least 8 of the following elements:***

* MAS/CEO/staff
* Information system
* Tourist data
* Accommodation data
* Bookings/in person/telephone/online/processes
* Expansion
* Enquiries/cancellations/complaints
* Communication issues
* Problems/issues/concerns
* Inaccurate
* Insecure
* Inefficient
* Staff roles/fears/opinions/expectations

**b). Explain briefly how the production of a root definition could aid the analysis of the information system at *MAS*. 2**

* It would describe the aims and functions of an improved/potential information system
* It would clarify the system’s processes
* It would help to clarify problems with the current system
* It would determine what the system does/what its aims are

**Question 2 [March 2018]**

The Customer Services department at Urban Water Call Centre performs a range of tasks such as processing customer data, answering queries and complaints from customers and contacting potential customers. The Human Resources department processes management information and staff data. The Finance department processes financial data. The Technical Support department staff have access to all parts of the information system and offer technical advice and support. The management team oversees the day to day running of the call centre.

The management team think that the current informaton system needs updating as it is complex, inefficient, unreliable and insecure. Some staff think that it is difficult to use. The managers also think that communication between departments needs to be improved as data is sometimes inaccurate after being transferred between departments. Software sometimes crashes as it cannot cope whith the volume of data that needs to be processed and there are been software security breaches. **10**

1. **Construct a RICH PICTURE that illustrates the information system used at Urban Water Call Centre.**

* Call Centre
* Customer Services department
* Customer Services staff
* Human Resources department
* Human Resources staff
* Finance department
* Finance department staff
* Technical Support department
* Technical Support staff
* Customers
* CEO
* Departmental managers
* Telephone calls
* Processes
* Tasks
* Data processing
* Customer data
* Financial data
* Customer accounts
* Queries
* Complaints
* Staff data
* Payments
* Wages
* Data input
* Data output
* Problems/issues/concerns

**1. [March 2017] A systems analyst is deciding whether to use a soft systems methodology to undertake information systems analysis at an organisation. Suggest FOUR (4) issues that an analyst should consider when making this decision. 4**

**[Sample 2015] State THREE (3) factors that should be considered when deciding whether or not to use a soft systems methodology. 3**

* If the analysis is required to focus on people a soft methodology would be appropriate
* If the analysis is required to focus on user interaction a soft methodology would be appropriate
* If human activity needs to be modelled a soft systems methodology would be appropriate
* If social/political/cultural issues need to be considered a soft methodology would be appropriate

**2. [March 2017] If the systems analyst in Q1 decides to use a soft systems methodology, Identify ONE (1) diagrammatic technique that she could use and state TWO (2) features illustrated by the diagram. 3**

**[Dec 2016] Explain how a rich picture can assist information systems analysis. You should support your answer with THREE (3) points. 3**

**[March 2016] State FOUR (4) aspects of an information system that can be illustrated by a concept diagram.**

**4**

**[Sample 2015] State TWO (2) diagrammatic techniques that are used in a soft approach to infirmation ystem analysis and briefly explain why each technique is appropriate. 4**

**A rich picture**

* Illustrates a view of the whole system
* Illustrates structures
* Illustrates processes
* Illustrates problems
* Illustrates conflicts

(OR)

**A conceptual model**

* Illustrates a potential system
* Illustrates ‘must have’ aspects of a system
* Illustrates desirable aspects of a system
* Illustrates desired outcomes of a potential system
* Illustrates potential functions/processes/activities

**3. [June 2017] A soft systems methodology can aid analysis of an information system. However, there are also limitations to using a soft approach. Briefly describe FOUR (4) limitations to using a soft systems methodology. 4**

**[Sept 2016] Describe THREE (3) disadvantages of performing a soft analysis on an information system. 3**

* If an information system is complex, it may not be helpful to use a soft methodology as it may cost in time and money
* It may take time/be costly to use in a large organisation
* It could take considerable time for the staff involved in the analysis/project to reach agreement
* It can be difficult to manage
* A soft approach is not as structured as a hard approach
* It may not be taken seriously as a methodology

**4. [Dec 2016] Explain the difference between a data flow diagram (DFD) and a concept diagram. You should support your answer with FOUR (4) points. 4**

**[June 2016] What are the differences between a data flow diagram and a rich picture? 4**

* A dataflow diagram is a formal method of/uses formal notation to illustrating the flow of data in a system
* A dataflow diagram illustrates processes, external entities, data flows, data stores
* A concept diagram is an informal method of illustrating a potential system/ideal system
* A concept diagram illustrates desired outcomes of a potential system/relationships and dependencies/activities
* Rich pictures are an informal method of illustrating the structure of a system, what takes place in it and relationships between the different parts
* Rich pictures are constructed using simple, pictorial representation

**5. [Dec 2016] Describe THREE (3) benefits of undertaking soft analysis of an information system. 3**

**[June 2016] Outline THREE (3) reasons why a soft systems methodology should be used to undertake information systems analysis. 3**

* It considers the human factors in an organisation
* It involves/encourages the participation of employees/stakeholders
* It helps to clarify problem areas in a system
* It provides an overview of a system
* It facilitates the identification of relationships in a system

**6. [Sept 2016] Identify FOUR (4) aspects of an information system that can be shown by a rich picture. 4**

* A system’s aims
* A system’s functions
* A system’s processes
* Why various processes are undertaken
* Clarification of a system’s problems

**7. [Sept 2016] Outline THREE (3) items of information stated in a root definition. 3**

**[June 2016] Identify THREE (3) characteristics of a root definition. 3**

* Aims of a potential system
* Functions of a potential system
* Processes of a potential system
* It clarifies problems with a system
* A primary task root definition focuses on system processes
* An issue-based root definition focuses on system problems

**8. [March 2016] Briefly explain how producing a root definition can aid a soft approach to information system analysis. 3**

**[Sample 2015] Explain how a root definition aids the analysis of an information system. 3**

* It describes the aims and functions of a potential system
* It clarifies a system’s processes
* It helps to clarify problems
* It defines what a system does/the aims of a system

**Topic 4**

**[March 2019]**

1. **Identify SIX (6) factors relating to technology that could have a negative impact on the information system’s development at The Body Restoration Centre. 6**

* Technology is out-of-date/not good quality
* Technology is operated by staff who are inexperienced/lack a technical background/lack training/lack technical knowledge
* Timescales for implementation of the technology are unrealistic
* There is a lack of planning
* Requirements/timescales/resources/budget/staff training/ implementation of the technology is not planned/not planned adequately
* Only one solution for implementing technology is considered
* System components are developed individually which could lead to possible system incompatibility/extra costs/extra time/inefficiencies
* There is insufficient funding available for the technology
* Designs for a new system are complex
* Developers are inexperienced

1. **Explain FOUR (4) tasks that you should undertake to deal with the potential negative impacts that you identified in Question 8 a). 4**

* Identify problem/issues
* Document the problems/issues
* Produce a requirements specification that details the problems/issues
* Document solutions/ recommendations in a requirements specification
* Reach agreement with the clinic’s managers that the solutions and/or recommendations are feasible
* Analyse/document
* t the clinic’s strengths
* Analyse/document opportunities within the clinic

**a). You are going to analyse the tasks undertaken by the information system’s users. Explain FOUR (4) items of information that you expect to discover. 4**

Various aspects of the tasks

* Workflow of the tasks
* Distribution of work
* User’s work skills
* Frequency of using technology
* Order in which the tasks are performed

**b). Identify TWO (2) fact-finding methods that you could use to undertake task analysis and for each method describe TWO (2) advantages of using it.**

***Interview***

* A considerable amount of information can be collected
* Information from several sources at different levels can be collected
* *A rapport can be established with the interviewee*
* Questions can be clarified
* Information collected from other sources can often be verified
* Problems can be uncovered that might otherwise not be discovered
* Leads can be obtained for collecting further information

***Observation***

* Can improve interviewer understanding of the working environment
* It validates data gathered from other sources

***Questionnaire/survey***

* Can be answered when convenient for the interviewee
* A large number of people can be contacted
* Easier to administer/document

***Focus group***

* Questions can be clarified
* Can be used to gather data from several sources at one time
* A range of responses can be collected

**a). If the information system’s interface is designed well it will bring a number of benefits to its users. Describe FIVE (5) benefits that it could bring. 5**

* It will help to increase productivity/efficiency
* It will reduce training costs
* It will reduce maintenance costs
* It will help to prevent user errors
* It will contribute to job satisfaction
* It will help raise the morale of users

**b). Suggest FIVE (5) checks that you will include in a usability test of the information system’s interface to determine if the development of the interface has met the needs of its users. 5 Mark**

* It is easy to use/learn to use
* It is aesthetically pleasing
* It is enjoyable to use
* It motivates its users
* It engages its users
* It is reliable

**[Sept 2018]**

The Company’s information system processes requests for tickets. The public can book tickets at each theatre, by telephone or via the company’s website. Personal data on staff, customers, performers and catering suppliers is processed and stored. The information system processes and stores data on customers payments, cancellations and refunds, payments ot performers, payments to catering suppliers and payments to the centre’s staff.

The informatin system needs to be updated and improved. It needs to be able to deal more effieiently with an increasing number of processing and adminstrative tasks. It also needs to be made more secure.

If you decide to use a soft approach to analyse the information sytem at City Entertainment Centre, you will need to produce a rich picture and a root definition. **8**

1. **Produce a rich picture of *City Entertainment Centre*.**

* Identification of the staff
* Identification of the customers
* Identification of performers
* Identification of suppliers
* Identification of Information system
* Identification of personal data of customers/staff/performers/suppliers
* Identification of financial data
* Identification of staff data
* Identification of administration data
* Identification of ticket bookings/in person/telephone/online
* Identification of ticket processing
* Identification of cancellations/refunds
* Identification of problems/issues/concerns
* Identification that aspects of the system are inefficient
* Identification that aspects of the system are Insecure
* Identification of staff roles/fears/opinions/expectations

**b). There are two types of root definition. Identify ONE (1) type and state the purpose of it. 2**

* A primary task root definition
* it focuses on system processes.
* An issue-based root definition
* it focuses on system problems

**[Sept 2018]**

1. **Aspects of society could have a negative influence on the company, which in turn could affect the development of the information system. Identify FOUR (4 ) aspects of society that could have a negative influence on *City Entertainment Centre*. 4**

* Advertising/marketing/publicity
* Lifestyle trends
* Consumer attitudes and opinions
* A brand/company/technology image
* Consumer buying trends
* Fashion and role models
* Major events
* Cultural factors
* Ethical factors
* Environmental factors

1. **Recommend THREE (3) solutions to overcome negative impacts of society on *City Entertainment Centre*. 3**

* A requirements specification should be produced that identifies/documents the negative influences of society
* The requirements specification should identify solutions to the negative influences identified/documented
* It should be agreed that the identified solutions are feasible

1. **State THREE (3) influences, in addition to society that could influence the company and the development of its information system. 3**

* Economic influences
* Technological influences
* Political influences

**.**

**1. [March 2017] State THREE (3) advantages of using a combined methodology when undertaking analysis of an organisation’s information system. 3**

**[March 2016] State THREE (3) advantages of using a combined approach (such as Multiview) to perform information system analysis. 3**

* It combines the benefits of a hard methodology with the benefits of a soft methodology
* Technical and human aspects of the information can be analysed
* Technical requirements can be determined
* User requirements can be determined
* It offers flexibility

**2. [Sample 2015] Suggest THREE (3) reasons why a combined approach to systems analyasis is undertaken for some projects. 3**

* To determine the requirements of people at an organization.
* To determine technical functions and requirements
* To combine the strengths of a hard approach with the strengths of a soft approach.

**Topic 5**

**[November 2019]**

**a). Identify a tool that you will use to illustrate information about stakeholders at *Techno Wearables*. 1**

* Stakeholder matrix

Use the tool that you identified in Question 5 a) and illustrate information about stakeholders at *Techno Wearables*.

Refer to the information provided in the Case Study. 9

|  |  |
| --- | --- |
| High power, interested people  Must be fully engaged and kept satisfied  CEO  Management of departments  Accountants  Technical staff | High power, less interested people  Should be kept informed and satisfied  Product designers  Salespeople  Administration staff |
| Low power, less interested people  Should be spoken with and monitored  Production operatives  Warehouse operatives | Low power, interested people  Should be kept informed and spoken with to ensure that they have no major concerns  Receptionists  Suppliers  Customers |

**a). State FIVE (5) items of information that can be discovered by *CATWOE analysis* and describe how each item relates to *Techno Wearables*. 10**

* Customers/Clients

To discover whether or not they would benefit from a new information system/if they have problems with the existing system/how they will react to a new information system.

* Actors/Agents

To discover who is directly involved with the system/what will be the impact of a new information system on them/how they might react to a new information system.

* Transformations

To discover what happens to data/what processes will be affected by development of the system/the inputs/where the inputs come from/how the inputs are converted into outputs/what theoutputs are/where the outputs go/whether there are other processes

* Worldview

To discover what is going on in and outside the company/what might be influencing the development of a new information system/if there will there be other impacts as a result of system development and what they will be

* Owners

To discover what role they will play in the development of a system/if they would help or hinder analysis/if and how they could make the analysis a success/if there are stakeholders who could make a claim for ownership or part ownership

* Environment

To discover political/legal/economic/social/demographic/technological/ethical/ competitive/environmental factors/their impact on analysis and design/how impacts could be resolved

**[Sept 2019]**

1. **CATWOE analysis could be used to find informaion about various aspects of the council. Identify SIX(6) types of information that could be found. 6**

* Customers/Clients
* Actors/Agents
* Transformations
* Worldview
* Owners
* Environment

**b). There is a possibility that CATWOE analysis might not be undertaken successfully. Discuss FOUR(4) reasons why CATWOE analysis might be unsuccessful. 4**

* Could be expensive to undertake
* Could take too much time to undertake
* Stakeholders/staff might not have the time to be involved
* Stakeholders/staff might not want to be involved/do not cooperate
* Agreement between parties might take time
* Not all stakeholders/staff are identified
* Potentially difficult to discover information
* Potentially difficult to manage
* External/financial/legal/ethical factors might hinder analysis

Question 4

**a). Discuss how analysing the stakeholders at the council will help your analysis of the council’s information system. Your answer should be supported by FIVE (5) points.**

* A wide range of stakeholders/staff can be identified
* Stakeholder characteristics can be identified
* Stakeholders who have power, influence, interest can be identified
* Stakeholders who have little power, influence can be identified
* Stakeholder opinions and ideas on system development can be determined
* High power, interested stakeholders who must be fully engaged and kept satisfied can be identified
* High power, less interested stakeholders/staff who should be kept informed and satisfied can be identified
* Low power, interested stakeholders who should be kept informed and spoken with to ensure that they have no major concerns can be identified
* Low power, less interested stakeholders who should be spoken with and monitored can be identified

**b). Describe FIVE(5) potential problems that might prevent stakeholder analysis from being performd effectively. 5**

* It could be expensive/insufficient finances
* It could take too much time to be completed
* Stakeholders might not have the time to be involved
* Stakeholders might not want to be involved
* Not all stakeholders are identified
* It might be difficult to discover information
* It could be a difficult analysis technique to manage
* External/financial/legal/ethical factors might hinder analysis of the system

**[June 2019]**

**a). Information about Urban Delivery Services could be discovered if CATWOE analysis is performed successfully. Identify SIX (6) items of information that could be discovered. 6**

* Information about customers/clients associated with the company
* Information about actors/agents/staff associated with the company
* Information about transformations/inputs/outputs/processes associated with various processes
* Information about worldview/internal factors/external factors/constraints
* Information about the company’s owner/stakeholders
* Information about environmental/economic/social/technological/ethical/ political/legal/competitive/demographic matters

**b). Describe FOUR(4) advantages of using CATWOE as an analysis technique. 4**

* Discover the views/opinions of users
* Discover reactions to a new/updated information system
* Discover potential problems/constraints
* Discover information regarding any problems/constraints
* Discover problems with an information system
* Facilitates solutions to problems
* Facilitates solving of complex human problems in an organisation
* Stakeholders can take part in discussions of problems/solutions/ joint problem-solving
* Facilitates open discussion of problems/needs/perspectives

**[June 2019]**

**a). Explain how the construction of a stakeholder matrix could help analysis at Urban Delivery Services. You should support your answer with SIX (6) points. 6**

* The power of stakeholders can be established
* The influence of stakeholders can be established
* The amount of stakeholder interest in the development of the information system can established
* A wide range of stakeholders/staff can be identified
* The opinions/ideas of stakeholders can be determined
* The extent to which stakeholders would be affected by the development of the information system can be determined
* Whether stakeholders are for or against the development of the information system can be determined

**b). Outline FOUR (4) negative aspects associated with undertaking stakeholder analysis. 4**

* It can be expensive to undertake
* It can take too long to gather information/complete
* Not all stakeholders are identified
* It can be difficult to determine information
* Some stakeholders might not have the time to be involved
* Some stakeholders might not want to be involved
* External factors can hinder progress
* Legal factors can hinder progress
* Ethical factors could hinder progress
* Financial factors can hinder progress

**[March 2019]**

**Discuss the advantages and disadvantages of undertaking CATWOE analysis at The Body Restoration Centre. You should make reference to SIX (6) advantages and FOUR (4) disadvantages. 10**

***Advantages***

* Discover the customers/clients associated with the company
* Discover the actors/agents associated with the company
* Discover the transformations/inputs/outputs/processes associated with the company
* Discover the worldview/internal/external factors/constraints associated with the company
* Discover who the company’s owners/stakeholders are
* Discover the environment/economic. social, technological, ethical, political, legal, competitive, environmental, demographic factors associated with the company
* Discover views of users
* Discover reactions to a new/updated information system
* Discover information regarding constraints
* Discover problems with an information system/in an organisation
* Discover potential problems/constraints
* Formulate solutions to problems
* Can solve complex human problems in an organisation
* Stakeholders can take part in discussions of problems/solutions/ joint problem-solving
* Open discussion of problems/needs/perspectives

***Disadvantages***

* *Could be expensive to undertake*
* *Could take too much time to undertake*
* Stakeholders/staff might not have the time to be involved
* *Stakeholders/staff might not want to be involved/do not cooperate*
* Agreement between parties might take time
* Not all stakeholders/staff are identified
* Possibly difficult to discover information
* Possibly difficult to manage
* External/financial/legal/ethical factors might impede improvements
* Would focus more on user issues than technical issues

**The clinic managers, doctors, nurses, physiotherapists, administration staff and receptionists use the information system at the clinic but catering staff and cleaning staff do not have access to it. Patients do not have access to it at the present time but the clinic managers want patients to be able to make or cancel appointments via a secure link to the information system.**

**Produce a stakeholder matrix for *The Body Restoration Centre.*  10**

|  |  |
| --- | --- |
| High power, interested people  Must be fully engaged and kept satisfied  The managers, doctors | High power, less interested people  Should be kept informed and satisfied  Nurses, physiotherapists |
| Low power, less interested people  Should be spoken with and monitored  Cleaning staff, catering staff | Low power, interested people  Should be kept informed and spoken with to ensure that they have no major concerns  Patients, administrators, receptionists/ |

**[December 2018]**

1. **If you use a soft system approach at Mango Mobile System you might undertake CTAWOE analysis. Identify SIX(6) aims of CATWOE analysis. 6**

* Customers/clients associated with the company
* Actors/agent associated with the company
* Transformations/input/outputs/processes associated with the company.
* Worldview/internal/external factors/constraints associated with the company.
* The company’s owners/stakeholders
* Environment /economic, social, technological, ethical, political, legal, competitive, environmental, demographic factors associated with the company.

1. **Consider FOUR(4) of the CATWOE aims that you have identified in question 3(a) and explain why it would be advantageous t analyse each one. 4**

* Customers/Clients – to find out : whether or not they would benefit from a new system / if they have problems with the existing system/how they will react to a new system.
* Actors/Agents – to find out: who is directly involved with the system. What will be the impact of a new system on them/ how they might react to a new sytem.
* Transformations – to find out: what happens to data/what processes will be affected by development of the system/ the inputs /where the inputs come from/ how the inputs are concerted /the inputs/ where the inputs come from/ how the inputs are converted into outputs/ what the outputs a re / where the outputs go/ whether there are other process.
* WorldView – to find out: what is going o in and outside the or organization/ what might be influencing the development of a new system/ if there will there be other impacts as a result of system development and what they will be.
* Owners – to find out: what role they will play in the development of a system/ if they would help or hinder analysis/ if and how they could make the analysis a success/ if there are stakeholders who could make a claim for ownership or part ownership.
* Environment – to find out: political / legal /economic /social/ demographic/technological/ethical/comp
* etitive/environmental factors /their impact on analysis and design/ how impacts could be resolved.

**[December 2018]**

Various members of staff use the information system the managing director, department managers, product designers, production operatives, administration staff, accountant, salespeople, warehouse operatives, technical s staff and receptionists.

The Managing Director, department managers and technical staff have access to all parts of the information system but other staff can access only certain parts.

1. **Construct a stakeholder matrix for Mango Mobile Systems. 10**

|  |  |
| --- | --- |
| * High power, interested people * Must be fully engaged and kept satisfied * Managing director * Department managers * Accounts * Technical staff | * High power, less interested people * Should be kept informed and satisfied * Product designers * Salespeople * Administration staff |
| * Low power, less interested people * Should be spoken with and monitored * Production operatives * Warehouse operatives | * Low power, interested people * Should be kept informed and spoken with to ensure that they have no major concerns * Receptionists * Suppliers * Customers |

1. **You need to analyse demographic data about the information system’s users at Mango Mobile Systems because you want to ensure that the information system’s interface is appropriate for the users. Suggest FIVE (5) items of information that you will discover about the users if you perform demographic data analysis.**

* Age groups
* Genders
* Levels of education/qualifications
* Their positions at the company
* Cultural background
* Accessibility requirements
* Technology training, knowledge, skills
* experience

1. **Explain potential disadvantages of demographic data analysis and support your answer with FIVE (5) points.**

* Inaccurate information could be gathered/analysed
* Insufficient information could be gathered/analysed
* A non-representative set of users might be sampled
* Different groups of users might have different needs/the needs of different groups of users might be merged into a single group of users
* The needs of all users might not be met

**[Sept 2018]**

**The following staff work at City Entertainment Centre: managing director, administration manager, finance manager, marketing manager, stage manager, IT manager, secrurity manager, catering manager, cleaning manager, administratin staff, finance staff, catering staff, IT staff, set designers, performers, security staff, catering staff and cleaning staff.**

1. **Produce a stakeholder matrix for City Entertainment Center. 10**

|  |  |
| --- | --- |
| High power, Interested people  Must be fully engaged and kept satisfied.  Managing director, administration manager finance manager, marketing manager, IT manager. | High power, less interested people.  Should be kept informed and satisfied  IT staff, administration staff, finance staff, stage managers, security manager, catering manager, cleaning manager |
| Low power, less interested people.  Should be spoken with and monitored.  Catering staff, security staff, cleaning staff. | Low power, interested people.  Should be kept informed and spoken with to ensure that they have no major concerns.  Set sesigners, perfrmers, customer/the public. |

**[June 2018]**

**a). Explain SIX (6) aims of CATWOE. 6**

* To Identify customers/clients
* To identify actors/agents
* To identify transformations/inputs/outputs/processes
* To identify worldview/internal/external factors/constraints
* To identify owners
* To identify environment/economic. social, technological, ethical, political, legal, competitive, environmental, demographic factors

**b). You have decided not to use CATWOE as part of your analysis. Justify FOUR (4) reasons why you have decided not to use it. 4**

* It could prove to be expensive to perform
* It could take too much time to perform
* Some staff might not cooperate
* Agreement between parties might take time
* It could be a difficult technique to manage
* It would focus more on user issues than technical issues

**Question 4[June 2018]**

Metropolis Accommodation Services(MAS) provides an accommodation service for almost 20,000 tourists that visit London each year. The company aims to provide tourists with high quality accommodation during their vacation.

The CEO wants to update the current information system at MAS in order to ensure that tourists are offered the best possible service. You have been asked to undertake analysis of the information system and to provice advice to the CEO on various aspects of the analysis.

Large volumes of data are processed and stored by the informatin system used by the company. Data includes torurist name and contact details, the type of accommodation required and how long it is needed and the cost and details of the accommodation’s owner.

Bookings can be made and paid in advnce in person, by telephone, by post or online.

Data is sometimes updated inaccurately, and this results in accommodation being double-booked. Enquires, cancellations and complaints are not documented by the current information system. System security also needs to be improved. Some staff tink think that here needs to be improved communication between MAS and the accommodation providers and this would result in a more efficeint and reliable information system. Some staff, however, are concerned that they might lose their jobs if the system becomes more efficient.

***MAS* is headed by the CEO. There are 5 middle managers. 20 customer service staff use the information system extensively. 4 staff work in the Human Resources department. 4 staff work in the Finance department. There are 4 technical staff. Other stakeholders include 3 receptionists and 4 catering staff.**

**a). Produce a stakeholder matrix of MAS. 10**

|  |  |
| --- | --- |
| High power, iterested people  Must be fully engaged and kept satisfied  CEO/Managers | High power, less interested people  Should be kept informed and satisfied  Some managers, finance staff, human resources staff |
| Low Poer, Less interested people  Should be spoken with and monitored  Receptionists/catering staff | Low power, interested people  Should be kept informed and spoken with to ensure that they have no major concerns  Customer service staff, technical staff, receptionists |

**[March 2018] a). When gathering information at Urban Water Call Centre you might decide to perform CATWOE analysis. Identify SIX (6) aspects of the company that will be analysed if you perform CATWOE analysis. 6**

* Customers/clients/staff
* Actors/agents/staff/users
* Transformations/system inputs, outputs, processes
* Worldview/internal/external factors/constraints
* Owners/CEO/management team
* Environment/economic. social, technological, ethical, political, legal, competitive, environmental, demographic factors

**b). Consider FOUR (4) of the CATWOE elements that you have identified in question 3(a) and explain why it would be advantageous to analyse each one. 4**

* Customers/Clients – to find out: whether or not they would benefit from a new system/if they have problems with the existing system/how they will react to a new system
* Actors/Agents – to find out: who is directly involved with the system/what will be the impact of a new system on them/how they might react to a new system
* Transformations – to find out: what happens to data/what processes will be affected by development of the system/the inputs/where the inputs come from/how the inputs are converted into outputs/what the outputs are/where the outputs go/whether there are other processes
* Worldview – to find out: what is going on in and outside the organisation/what might be influencing the development of a new system/if there will there be other impacts as a result of system development and what they will be
* Owners – to find out: what role they will play in the development of a system/if they would help or hinder analysis/if and how they could make the analysis a success/if there are stakeholders who could make a claim for ownership or part ownership
* Environment – to find out: political/legal/economic/social/demographic/technological/ethical/ competitive/environmental factors/their impact on analysis and design/how impacts could be resolved

**[March 2018] 2. It is important to identify the stakeholders at *Urban Water Call Centre*. The Customer Services department employs forty staff. The Human Resources department employs eight staff. Six staff are employed in the Finance department. The Technical Support department employs four staff. The management team consists of the CEO and four departmental managers. Twelve catering staff are employed at the company. There are also four security guards.**

**a). Explain how a stakeholder analysis will help you analyse the call centre’s information system. You should support your answer with SIX (6) points. 6**

* It can be used to identify a range of stakeholders/staff
* It can be used to determine the stakeholder’s/staff characteristics
* It can determine stakeholders/staff who have power, influence, interest
* It can determine stakeholders/staff who have little power, influence
* It can determine stakeholder’s/staff opinions and ideas on system development
* It can determine the high power, interested stakeholders/staff who must be fully engaged and kept satisfied
* It can determine the high power, less interested stakeholders/staff who should be kept informed and satisfied
* It can determine the low power, interested stakeholders who should be kept informed and spoken with to ensure that they have no major concerns
* It can determine the low power, less interested stakeholders who should be spoken with and monitored.

**b). Outline FOUR (4) constraints that might prevent you from undertaking stakeholder analysis successfully. 4**

* It could be expensive/insufficient finances
* It could take too much time to be completed
* Stakeholders/staff might not have the time to be involved
* Stakeholders/staff might not want to be involved
* Not all stakeholders/staff are identified
* It might be difficult to discover information
* It could be difficult to manage
* External/financial/legal/ethical factors might impede improvements to a system

**I. Stakeholder**

**1. [September 2016] List THREE (3) stakeholders associated with a college. 3**

* Students
* Teaching staff
* Technicians
* Catering staff
* Administration staff

**2. [June 2016] State FOUR (4) examples of stakeholders that could be discovered during the analysis of an information system used by a chain of restaurants. 3**

**[March 2016] State THREE (3) types of stakeholders that could be identified during the analysis of an information system at a bank. 3**

**[December 2015 Sample] Identify TWO (2) stakeholders associated with a manufacturing organization. 2**

**[December 2015 Sample] Identify THREE (3) groups of people in an organization who could be involved if a people oriented methodology is adopted for analysis. 3**

* Cashiers
* Administration staff
* Management
* Customers

**3. [September 2017]**

**Outline TWO (2) successful outcomes of undertaking a stakeholder analysis other than identifying an organisation’s stakeholders. 2**

**[June 2016] Outline THREE (3) reasons why a systems analyst might decide to undertake stakeholder analysis as part of information systems analysis. 3**

* To identify an organisation’s stakeholders
* To identify potential problems/ barriers to systems development
* To identify how to remove/ resolve barriers/ problems
* To define actions/plans

**II. Stakeholder Matrix**

1. **[December 2017] Using the information provided in CATWOE question, construct a stakeholder matrix that illustrates information about Sail Away’s stakeholders. 10**

|  |  |
| --- | --- |
| * **High power, High Interested people** * **Must be fully engaged and kept satisfied** * **CEO/ Passenger Managers/ Restaurant Managers** | * **High power, Less interested people** * **Should be kept informed and satisfied** * **Assistant Managers** |
| * **Low power, less interested people** * **Should be spoken with and monitored** * **Other crew/ suppliers** | * **Low power, interested people** * **Should be kept informed and spoken with to ensure that they have no major concerns** * **Technical staff/ Administration staff** |

1. **[September 2017] Identify FOUR (4) categories of stakeholder that should be shown in stakeholder matrix and explain how each stakeholder category should be treated. 8**

**[June 2017] A stakeholder matrix can help a systems analyst identify key stakeholders in an   
 organisation. Construct a stakeholder matrix that illustrates information about an organisation’s   
 stakeholders. 8**

**[December 2016] Identify (5) characteristics of stakeholders at an organization that could be   
 revealed by the use of a stakeholder matrix. 5**

**[June 2016] Outline FOUR (4) categories of stakeholder that re illustrated by a stakeholder matrix   
 and briefly explain how each category should be treated during the development of a new system. 4**

* This can be used to discover the key stakeholders and find out how they feel about the development of the information system and how they are likely to react to its development
* It can also be used to decide how to engage and communicate with the stakeholders
* High Power, High Interest people must be fully engaged and managed closely
* High Power, Less Interest people must be kept informed and satisfied
* Less Power, High Interest people should be kept informed and spoken with to ensure that they have no major concerns
* Less Power, Less Interest people must be spoken with and monitored

**[Sept 2016]**

**Identify FOUR (4) items of information about an organisation’s stakeholders that could be documented in a stakeholder analysis report. 4**

* Stakeholders who have power, influence and interest in an organisation
* Stakeholders who have high power, high interest
* Stakeholders who have high power, low interest
* Stakeholders who have low power, high interest
* Stakeholders who have low power, low interest

1. **[March 2016]**

**Outline FOUR (4) successful outcomes of constructing a stakeholder matrix. 4**

**[December 2015 Sample] Explain how constructing a stakeholder matrix helps a Systems Analyst to collect information in an organization. 4**

* It helps to determine the people/stakeholders who have power, influence, and interest.
* It helps to determine who are the most influential people
* It helps to determine who are the least influential people
* It helps to determine which people need to be consulted and kept informed during information gathering.

1. **[March 2017]**

**Describe FIVE (5) benefits of constructing a stakeholder matrix when undertaking information systems an analysis. 5**

**[March 2016] Outline Four (4) successful outcomes of constructing a stakeholder matrix. 4**

* It determines the stakeholders who have power, influence, and interest
* It determines the most influential stakeholders
* It determines the least influential stakeholders
* It determines which stakeholders should be consulted
* It determines which stakeholders should be kept informed
* It determines which stakeholders should be kept fully engaged/satisfied
* It determines which stakeholders should be spoken with and monitored

1. **[June 2017] Stakeholder analysis is not always successful. Identify TWO (2) reasons why it is sometimes unsuccessful. 2**

**[March 2017] Outline FIVE (5) problems that might be encountered when trying to produce a stakeholder matrix. 5**

**[December 2016] Describe FIVE (5) potential barriers to the successful analysis of stakeholders. 5**

**[September 2016] State THREE (3) disadvantages of stakeholder analysis. 3**

**[March 2016] Suggest THREE (3) reasons why stakeholder analysis can sometimes be ineffective. 3**

**[December 2015] Identify TWO (2) obstacles that can limit the success of stakeholder analysis. 2**

* Stakeholders might not have time to be involved.
* Not all stakeholders might be involved.
* Stakeholders might not really know what they want from the system.
* It might be difficult to gather information from stakeholders, e.g. they are too busy to attend interview, complete questionnaires or are reluctant to be observed at work.

**II. CATWOE**

1. **[Dec 2017] The staff who have access to Sail Away’s information system include: six Passenger Managers, six Assistant Passenger Managers, 20 administration staff, six Restaurant Managers, six Assistant Restaurant Managers and six technical staff. The CEO also has access to the passenger and stock databases. The other crew on each ship do not have access to the information system.**

**If you decide to use a soft systems approach to analysis, you will undertake a CATWOE analysis of Sail Away. Identify THREE (3) CATWOE elements and explain each element that you have identified.6**

* Customers/ Clients - the passengers
* Actors/ Agents – the information system users
* Transformations element – the system inputs, outputs, processes
* World View element – the factors inside/ outside the company
* Owner’s element – the CEO
* Environment – financial, legal, ethical factors
* **[June 2017] CATWOE analysis can provide useful information to a systems analyst. Briefly describe FOUR (4) types of information that can be discovered if CATWOE analysis is performed.**  4
* Information on customers/clients/staff
* Information on actors/agents/users/staff
* Information on transformations/system inputs/outputs/processes
* Information on worldview/internal/external factors/constraints
* Information on owners/management
* Information on environment/financial, legal, ethical factors

1. **[September 2017] When undertaking CATWOE analysis, a systems analyst discovers information about clients. Explain FOUR (4) types of information that can be revealed. 4**

**[June 2016] Outline FOUR (4) types of information that a systems analyst could find out about clients when undertaking CATWOE ansalysis.**

**[March 2017] A systems analyst can discover information on an organisation’s customers as a result of performing CATWOE analysis. Describe THREE (3) examples of such information. 3**

* Who the clients are
* How the clients influence a system
* How the clients are influenced by a system
* Problems that clients may have with an existing system
* Client’s reactions to a new/updated system

1. **[Sept 2016] In terms of CATWOE analysis, explain how actors can influence the development of an information system. You should support your answer with THREE (3) points. 3**

* They represent people who are directly involved with an information system. E.g. users
* They represent people who undertake activities associated information system
* They are involved in implementing solutions
* They are involved in transforming inputs into outputs
* They represent the views of system users

1. **[Sept 2017]**

**Identify THREE (3) aspects of an information system that can be determined after analysis of the transformation element of CATWOE. 3**

**[Sept 2016] With regard to CATWOE analysis, explain the purpose of identifying transformations.   
 You should support your answer with THREE (3) points. 3**

* Inputs to the system are determined
* Where the inputs come from is determined
* Outputs to the system are determined
* Where the outputs go is determined
* How the inputs to the system are transformed/ converted into outputs id determined
* Any other system processes are determined

1. **[June 2016]**

**State THREE (3) outcomes of identifying the owners in CATWOE analysis. 3**

* It refers to who owns the organization
* The role of owner will play in the system development
* Whether the owner will help or hinder t he analysis
* Whether or not there are other stakeholders who could make a claim of ownership or part ownership of the organization

1. **[June 2017]**

**As with other information systems analysis techniques, CATWOE has its advantages and disadvantages. Evaluate CATWOE as an analysis technique and support your answer with THREE (3) benefits and THREE (3) limitations of CATWOE. 6**

**[September 2016] Suggest FOUR (4) advantages of performing CATWOE analysis. 4**

**[March 2016] Briefly explain THREE (3) advantages of collecting information about customers   
 when undertaking CATWOE analysis. 3**

**[March 2016] Briefly discuss FOUR (4) outcomes of successful CATWOE analysis.**

* Open discussion
* Joint problem solving
* Staff, customers, and stakeholders are more likely to understand and support information system development if they take part in defining a problem and discussing how it could be improved
* It allows a problem defining to be formulated and reformulated if required, allowing flexibility in the definition and suggested solution
* Complex human problem situations in an organisation can be considered
* Beneficial if an organisation has several goals
* Beneficial if there are a considerable number of stakeholders
* Beneficial if staff, customers and stakeholders have different views and opinions

**[Dec 2017] Discuss FOUR (4) disadvantages of performing CATWOE analysis. 4**

**[September 2017] A systems analyst might encounter problems when gathering information from an organisation’s employees about requirements for a new information system. Explain THREE (3) potential problems. 3**

**[December 2016] Identify FIVE (5) problems in an organization that can be revealed if a systems analyst undertakes CATWOE analysis. 5**

**[June 2016] State THREE (3) disadvantages associated with performing CATWOE analysis. 3**

**[March 2016] State THREE (3) problems that can be discovered by CATWOE analysis. 3**

* May not be appropriate for complex systems in large organization due to economic and time constraints
* Can take a long time to reach agreement
* It can be difficult to manage
* It has been accused of concentrating more on user and less on the technical specifications

**Topic 6**

**[November 2019]**

**a). Discuss why you have decided to use ETHICS analysis as part of your analysis at Techno Wearables. 6**

* The information system could be more efficient
* Interaction between users and the information system/technology could be improved
* Job satisfaction could be improved
* Morale could be improved
* Could ensure better communication between staff
* Could ensure training is offered
* Could reduce boring/repetitive tasks
* Could ensure that their jobs/roles enable them to use and develop their skills, knowledge (Knowledge Fit)
* Could ensure that their jobs/roles enable them to further their achievements, recognition, advancement, status (Psychological Fit)
* Could ensure that their jobs/roles are demanding, fulfilling

(Task-Structure Fit)

* Could ensure that their jobs/roles offer financial rewards, incentives/acceptable work/supervisory controls (Efficiency Fit)
* Could ensure that staff values/philosophy are compatible with those of the managers/company (Ethical Fit)

**b). Explain what disadvantages occur if ETHICS analysis is used. 4**

* It could be expensive
* It could take time
* It could disrupt the workplace
* Will the benefits outweigh the costs
* Are there alternative solutions
* What are the benefits in the short, medium and long term

**[Sept 2019]**

**a). Describe FOUR (4) aspects of *Central Metro Council* that could be discovered if ETHICS is used during analysis. Your answer should not make reference to Fits.**

* Factors/issues relating to the interaction of technology and people
* Human factors/issues
* Technical factors/issues
* Factors/issues relating to job satisfaction
* Factors/issues relating to productivity

**b). Identify THREE (3) Fits in ETHICS and explain what each Fit is used to assess. 6**

* Knowledge Fit assesses whether or not a job allows an employee to use and develop their skills /knowledge
* Psychological Fit assesses whether or not a job allows an employee to further their achievements/recognition/advancement/ status
* Task-Structure Fit assesses whether or not a job meets an employee's requirements for variety/interest/feedback/if the job is demanding/fulfilling/repetitiveness of tasks
* Efficiency Fit assesses whether or not a job offers financial reward/incentives/if work controls and supervisory controls are acceptable to an employee
* Ethical Fit which assesses whether or not the values/ philosophy/ethics of an employee are compatible with those of their manager/council

**[June 2019]**

**a). ETHICS analysis can be used to assess job satisfaction at Urban Delivery Services. Identify and describe THREE (3) measures of job satisfaction that can be used at the company. 6**

* The Knowledge Fit assesses whether or not a job allows an employee to use and develop their skills /knowledge.
* The Psychological Fit assesses whether or not a job allows an employee to further their achievements/recognition/advancement/ status.
* The Task-Structure Fit assesses whether or not a job meets an employee's requirements for variety/interest/feedback/if the job is demanding/fulfilling/repetitiveness of tasks.
* The Efficiency Fit assesses whether or not a job offers financial reward/incentives/if work controls and supervisory controls are acceptable to an employee.
* The Ethical Fit which assesses whether or not the values/ philosophy of an employer are compatible with those of their employees

**b). Suggest FOUR(4) advantages for Urban Delivery Services if the owner accepts the recommendation of ETHICS analysis. 4**

* The information system could be more efficient
* Interaction between users and the information system/technology could be improved
* Job satisfaction could be improved
* Morale could be improved
* Less pressure on staff
* Better communication between staff
* Better training/career progression
* Reduction of boring/repetitive tasks
* Jobs/roles enable skills, knowledge to be developed (Knowledge Fit)
* Jobs/roles enable achievements, recognition, advancement, status (Psychological Fit) to be furthered – if not already discussed in Q6 (a)
* Jobs/roles are demanding, fulfilling (Task-Structure Fit) – if not already discussed in Q6 (a)
* Jobs/roles offer financial rewards, incentives/acceptable work/supervisory controls (Efficiency Fit) – if not already discussed in Q6 (a)
* Staff values/philosophy are compatible with those of the management/company (Ethical Fit) – if not already discussed in Q6 (a)

**[March 2019]**

**Explain the advantages for staff at *The Body Restoration Centre* if you undertake ETHICS analysis and your recommendations are accepted. 6**

* The information system could be more efficient
* *Interaction between users and the information system/technology could be improved*
* *Job satisfaction could be improved*
* Morale could be improved
* *Could ensure better communication between staff*
* *Could ensure training is offered*
* *Could reduce boring/repetitive tasks*
* *Could ensure that their jobs/roles enable them to use and develop their skills, knowledge (Knowledge Fit)*
* *Could ensure that their jobs/roles enable them to further their achievements, recognition, advancement, status (Psychological Fit)*
* Could ensure that their jobs/roles are demanding, fulfilling (Task-Structure Fit)
* Could ensure that their jobs/roles offer financial rewards, incentives/acceptable work/supervisory controls (Efficiency Fit)
* Could ensure that staff values/philosophy are compatible with those of the managers/company (Ethical Fit)

**b). Explain why ETHICS analysis might not be successful. You should support your answer with FOUR (4) points. 4**

* Some staff might find it difficult to explain what they require from a system
* Some staff might be reluctant to participate
* Some staff might be unable to participate during analysis due to work/time commitments
* The cost of changes in an organisation as a result of ETHICS analysis might outweigh the benefits
* Staff might be worried about the consequences of stating their opinions and not participate
* Possibly difficult/time-consuming to manage

**[December 2018]**

1. **If you ETHICS you will analyse a number of fits. Identify THREE(3) fits and explain the purpose of each type of fit that you identify. 6**

* Knowledge Fit – assesses whether or not a job allows an employee to use and develop their skills/ knowledge.
* Psychological Fit – assesses whether or not a job allows an employee to further their achievements/ recognition/advancement/status
* Task Structure Fit – assesses whether or not a job meets an employee’s requirements for variety/ interest/feedback/if the job is demanding/fulfilling/repetitiveness of tasks
* Efficiency Fit – assesses whether or not a job offers financial reward/incentives/if work controls and supervisory controls are acceptable to an employee.
* Ethical Fit – which assesses whether or not the values/philosophy/ethics of an employee are compatible with those of their manager/company.

1. **In addition to analysing the fits associated with ETHICS, outline FOUR(4) other advantages of using ETHICS. 4**

* Facilitates the e ffective, technical, human, implementation of computer-based systems
* Focuses on the interaction of technology and people
* Analyses human factors
* Analyses technical factors

**[Sept 2018]**

1. **Explain SIX (6) items of information about *City Entertainment Centre* that you could find if you use ETHICS. 6**

* Efficiencies/Inefficiencies in the information system
* Interaction between users and the information is effective/needs to be improved
* Job satisfaction/lack of job satisfaction
* Good morale/lack of morale
* Good communication/lack of communication
* Sufficient staff training/lack of staff training
* Interesting tasks/boring/repetitive tasks
* Jobs enable staff to use and develop their skills, knowledge/do not enable staff to use and   
   develop their skills, knowledge (Knowledge Fit)
* Jobs enable staff to further their achievements, recognition, advancement, status/do not   
   enable them to further their achievements, recognition, advancement, status (Psychological   
   Fit)
* Jobs are demanding, fulfilling/undemanding, unfulfilling (Task-Structure Fit)
* Jobs offer financial rewards, incentives, acceptable work, supervisory controls/do not offer   
   financial rewards, incentives, acceptable work, supervisory controls (Efficiency Fit)
* Staff values/philosophy are compatible with those of the managing director/company/ are   
   incompatible

1. **Explain FOUR (4) potential problems that might prevent you from using ETHICS effectively at *City Entertainments Centre*. 4**

* Staff might be reluctant to participate/contribute
* Staff might be unable to explain what they want from a system
* Staff might be unable to participate/contribute due to work commitments/time commitments
* Staff might be concerned about the consequences of starting their opinions
* Staff might not be interested in participating/contributing
* It could be difficult/time-consuming to manage
* It could be difficult to complete

**[June 2018]**

**a). The use of ETHICS methodology could be beneficial to *MAS* as it considers human aspects and various ‘Fits’. Identify THREE (3) Fits and explain one feature of each Fit that you identify. 6**

* The Knowledge Fit assesses whether or not a job allows an employee to use and develop their skills /knowledge
* The Psychological Fit assesses whether or not a job allows an employee to further their achievements/recognition/advancement/ status
* The Task-Structure Fit assesses whether or not a job meets an employee's requirements for variety/interest/feedback/if the job is demanding/fulfilling/repetitiveness of tasks
* The Efficiency Fit assesses whether or not a job offers financial reward/incentives/if work controls and supervisory controls are acceptable to an employee
* The Ethical Fit which assesses whether or not the values/ philosophy/ethics of an employee are compatible with those of their manager/company

**b). Discuss FOUR (4) constraints of undertaking ETHICS. 4**

* Some system users might find it difficult to explain what they require from a system
* Some users might be reluctant to participate in ETHICS
* Some users might be unable to participate during analysis because of work/time commitments
* The cost of changes in an organisation as a result of ETHICS analysis might outweigh the benefits
* Users might be worried about the consequences of stating their opinions
* It might not be suitable/appropriate to use when analysing complex systems in large organisations
* It might be a difficult/time-consuming technique to manage.

**[March 2018]**

**a). The use of ETHICS could be beneficial to the analysis of the information system at *Urban Water Call Centre*. Explain the purpose of ETHICS and support your answer with FOUR (4) POINTS. 4**

* It facilitates the effective, technical, human, implementation of computer-based systems
* It focuses on the interaction of technology and people
* It facilitates technically efficient systems that offer greater job satisfaction
* It facilitates the analysis of human factors
* It facilitates the analysis of technical factors

**b). Describe SIX (6) benefits for the staff at the call centre if the recommendations of an ETHICS analysis are accepted by the management team. 6**

* The information system could be more efficient
* Interaction between users and the information system/technology could be improved
* Job satisfaction could be improved
* Morale could be improved
* taking pressure off staff who have too much paperwork
* It could ensure better communication between staff
* It could facilitate better training/career progression
* It could reduce boring/repetitive tasks
* It could ensure that their jobs/roles enable them to use and develop their skills, knowledge (Knowledge Fit)
* It could ensure that their jobs/roles enable them to further their achievements, recognition, advancement, status (Psychological Fit)
* It could ensure that their jobs/roles are demanding, fulfilling (Task-Structure Fit)
* It could ensure that their jobs/roles offer financial rewards, incentives/acceptable work/supervisory controls (Efficiency Fit)
* It could ensure that staff values/philosophy are compatible with those of the CEO/management team/company

**ETHICS**

1. **[June 2017] ETHICS can be used to measure job satisfaction at an organisation. Identify TWO 2 measures of job satisfaction that ETHICS analyses and briefly describe each measure. 4**

**[June 2016] Explain the purpose of analysing the Knowledge Fit when using ETHICS during  
 information systems analysis. 3**

**[March 2016] Identify and briefly discuss FOUR (4) methods of assessing job satisfaction when  
 undertaking ETHICS. 4**

* Knowledge fit – assesses whether or not an employee’s job allows them to use and develop their skills and knowledge
* Psychological fit – assesses whether or not an employee’s job allows them to further their achievements, recognition, advancement, or status
* Task-structure fit – assesses whether or not job meets an employee’s requirements for variety, interest, feedback, task identity and autonomy and if the job is demanding and fulfilling: technology can affect task-structure fit as it can reduce satisfaction due to simplification and repetitive of tasks
* Efficiency fit – assesses whether or not the job offers financial rewards and incentives and if work controls and supervisory controls are acceptable to an employee.
* Ethical fit – assesses whether or not the values or philosophy of the employer are compatible with those of the employee.

**[Mar 2017] Explain how measuring the Task-Structure Fit could benefit the users of an information system. You should support your answer with THREE (3) points. 3**

* It will determine whether their job has variety
* It will determine whether their job is interesting
* It will determine if their job is demanding
* It will determine if their job is fulfilling
* It will determine of their job is repetitive
* Are they working to realistic targets

**[Sept 2016] Suggest THREE (3) reasons why the Efficiency Fit is analysed when undertaking ETHICS. 3**

* It assesses whether or not a job offers financial rewards.
* It assesses whether or not a job offers incentives.
* It assesses whether or not work controls are acceptable to an employee.
* It assesses whether or not supervisory controls are acceptable to an employee.

**[Mar 2017] The Ethical Fit can be analysed when undertaking a socio-technical approach to information system analysis. State FOUR (4) aims of analysing the Ethical Fit. 4**

**[June 2016] Suggest THREE (3) reasons to consider the Ethical Fit when performing ETHICS. 3**

* To assess/identify whether or not the values of an employee are compatible with those of an employer
* To assess/identify whether or not the philosophy of an employee are compatible with those of the employer
* To assess/identify how the ethics of an employee match those of an organization
* To assess/identify if a reduction in job satisfaction is likely if there is a difference in the values/philosophy between an employee/employer

1. **[September 2017] Identify THREE (3) aspects of an organization that can be analysed using ETHICS. 3**

**[Sept 2016] Suggest FOUR (4) indicators of successful ETHICS analysis. 4**

* Technical factors are determined
* Human factors are determined
* Alternative solutions to social issues are determined
* Human and technical factors interact
* Work systems are produced which are technically efficient
* Greater job satisfaction is possible
* Job productivity is improved

**[December 2017] ETHICS is an information systems analysis strategy. Identify TWO (2) purposes of ETHICS. (2)**

**[December 2017] Explain FOUR (4) benefits of using ETHICS. (4)**

**[December 2017] Explain FOUR (4) disadvantages of using ETHICS. (4)**

**[June 2017] ETHICS can be used as part of information systems analysis. Briefly explain TWO (2) key factors of an organisation that ETHICS can be used to analyse and evaluate the approach as an analysis methodology. Your evaluation should be supported by reference to TWO (2) benefits and TWO (2) limitations of this approach**. **(6)**

**[June 2016] Outline FOUR (4) reasons why ETHICS might be unsuccessful. (4)**

**[March 2016] Outline THREE (3) potential barriers to using ETHICS. (3)**

**Key factors / Purpose**

* Facilitates analysis of human factors
* Facilitates analysis technical

**Benefits of ETHICS**

* Facilitates technically efficient systems
* Facilitates the improvement of interaction between users and technology
* Considers job satisfaction as important as technical matters
* Facilitates the improvement of productivity

**Limitations of ETHICS**

* Some system users might find it difficult to explain what they require from a system
* Some users might be reluctant to participate in ETHICS
* Some users might be unable to participate during analysis because of work commitments
* The cost of changes in an organisation as a result of ETHICS analysis might outweigh the benefits

1. **[Mar 2017] Identify THREE (3) social issues that could be uncovered at an organization using a socio-technical approach such as ETHICS. (3)**

**[March 2016] Identify THREE (3) social issues that could be uncovered at an organization if ETHICS   
 is used. (3)**

* A lack of communication between staff
* A lack of training
* A lack of career progression
* Tasks are boring/repetitive
* Work overload

**Topic 7**

1. **[September 2017] Explain the meaning of the term people-oriented approach to information systems analysis and outline FOUR (4) key differences between a people-oriented approach and an organisation-oriented approach. Support your answer with an example of when a people-oriented approach is appropriate and when an organisation-oriented approach is appropriate. 7**

**People-oriented analysis**

* It takes a soft approach to analysis
* It is a less structured approach to analysis than an organisation-oriented analysis
* It does not focus on technological aspects of a system
* It is more flexible than organisation-oriented analysis
* It recognises that user interaction is as important as technical considerations
* It focuses on user requirements of an information system
* Human activity is modelled as opposed to/in addition to system activity

**Example of people oriented anlaysis**

* When a flexible approach to analysis is required
* When user/social/political issues need to be considered
* If greater interaction with users is required

**Example of Organization-oriented anlaysis**

* When technological aspects of a system need to be analysed
* When a structured approach to analysis is required

**Organization-oriented analysis**

* It takes a hard approach to analysis
* It can combine a hard/soft approach
* A more thorough analysis of the functional requirements of a system than people-oriented analysis
* It facilitates thorough planning and scheduling of analysis
* It focuses on analysing technical aspects
* It lacks the flexibility of people-oriented analysis
* It can take longer to deliver than people-oriented analysis

1. **[December 2015 Sample] Online THREE (3) disadvantages of using a process oriented methodology when analyzing an information system. (3)**

* Concentrates on a hard approach to system analysis and there is little involvement of the user
* Neglect the human, social and organizational impacts of system
* The step-by-step approach makes this methodology less flexible than other methodologies
* May not be as through as other methodologies
* May be difficult to manage
* Maintaining, updating, and documenting a complete set of DFDs can be time consuming
* DFDs are not always designed with the user in mind and this can cause difficulties in communication

1. **[Sample] Discuss the comparison of a dynamic enterprise model with a static enterprise model. (4)**

* Static Modelling: a view of an organization at a point in time and considers the aims of an organization, its structure, its position and opportunities it has to expend
* Dynamic Modelling: Looks at the way an organization changes over time and is used when an organization is having a make a decision and needs to know how this decision will affect the whole organization.

1. **[Sept 2016] Identify THREE (3) characteristics of POEM. (3)**

* It considers human activity in an information system
* It combines aspects of a soft approach to information systems analysis with a hard approach
* It is appropriate to use if analysing the knowledge-base and knowledge management within an organisation

**Topic 8**

**[Sept 2019]**

**a). Object oriented analysis (OOA) could be used at *Central Metro Council* as an alternative approach to a soft approach. Describe SIX (6) characteristics of OOA. 6**

* Information system development can be undertaken quickly compared to a soft approach.
* Can be undertaken more cost efficiently than a soft approach
* Software maintenance is improved
* Consistency of modelling is increased
* Communication between analysts, designers, programmers and users is improved
* A model can be constructed of the tasks that an information system is required to perform/dynamic/object/functional models can be constructed
* Objects and their inter-relationships in an information system are identified
* A complex system can be decomposed into understandable components

**b). If OOA is undertaken at Central Metro Council, an activity model will be required. Construct an activity model that illustrates ONE (1) business activity at the council. Use the information provided in the case study to assist you. 4**

* The business activity should be stated
* Business activities should be illustrated/data requests are advertised
* Processes should be illustrated/data processing for housing, etc.
* Events that initiate actions/decisions should be illustrated e.g. an organization requests data
* The flow of events should be illustrated
* Accurate notation should be used

**[June 2019]**

**a). Oject oriented analysis(OOA) can be used as an alternative to a hard or soft approach to analysis. DiscussSIX(6) key features of OOA. 6**

* It facilitates an information system to be considered as a collection of interacting objects that work together to accomplish tasks
* Objects and their inter-relationships are identified
* It facilitates decomposition of an information system into understandable components
* OOA is divided into stages consisting of tasks which are broken down into sub-tasks
* It facilitates interaction with an information system users to identify their requirements
* It facilitates identification of an information system’s functions
* Models are constructed of the tasks an information system is required to perform/dynamic/object/functional models are constructed
* Object models, e.g. class diagrams, are produced that represent static structures of information systems
* Dynamic models are produced that illustrate the behaviour of information systems over time and the flow of control and events in event-trace diagrams and state transition diagrams
* Functional models are produced that illustrate internal processes independently from how the processes are performed
* It facilitates the re-use of software components
* It facilitates ease of software modification

**b). Describe FOUR (4) limitations of using OOA as a tool for analysis at Urban Delivery Services. 4**

* It will not take into consideration the user element in as much detail as a soft approach
* It will not analyse/consider human problems/issues
* It will be limited to modelling and describing what should be done rather than how it should be done
* Processes/data flow might be poorly illustrated/described
* It might be considered a complex approach/not easily understood

**[March 2019]**

**Explain why using a soft systems methodology (SSM) might be less successful than undertaking object oriented analysis (OOA). In your answer, you should make reference to FIVE (5) limitations of using SSM and FIVE (5) benefits of using OOA. (10)**

***Limitations of SSM***

* *Focuses on human aspects and not on technical issues*
* Can take longer to undertake than OOA
* Can be more expensive to undertake than OOA
* Can be difficult to manage
* Less structured than OOA
* Considers data and processes separately unlike OOA
* Relies on considerable stakeholder participation unlike OOA

***Benefits of using OOA***

* Information system development can be undertaken quickly
* Can be undertaken more cost efficiently
* Software can be modified
* Software can be reused
* Software maintenance is improved
* Consistency of modelling is increased
* Communication between analysts/designers/programmers/users is improved
* A model can be constructed of the tasks that an information system is required to perform/dynamic/object/functional models can be constructed
* An information system’s user requirements are identified
* An information system’s functions are identified
* Objects and their inter-relationships in an information system are identified
* A complex system can be decomposed into understandable components

**[December 2018]**

1. **Compare the benefits of using object oriented analysis (OOA) with the benefits of using structured systems analysis and design methodology(SSADM). Make reference to FIVE(5) benefits of OOA and FIVE(5) benefits of SSADM. 10  
   Benefits of OOA**

* Information system development can be undertaken quickly
* Can be undertaken more cost efficiently
* Software can be modified
* Software can be reused
* Software maintenance is improved
* Consistency of modelling is increased
* Communication between analysts/ designers/ programmers/ user is improved
* A model can be constructed of the tasks that an information system is required to perform/dynamic/object/functional models can be constructed
* An information system’s user requirements are identified
* An information system’s functions are identified.
* Objects and their inter-relationship in an information system are identified
* A complex system can be decomposed into understandable somponets

**Benefits of SSADM**

* Facilitates through analysis of an information system
* Strict standards/rules/guidelines
* Facilitates a sequential process/series of stages
* Looks at three views: process, data and event
* Uses data flow modelling / determines the ways data flows through the system/areas where data is held/how data changes
* Uses logical data modelling/ illustrates interconnectedness of data and how parts relate to one another
* Use entity event modelling/ illustrates how data responds to events
* Takes a high level overview, details of lower levels are then determined
* Particularly useful for large organizations

**[Sept 2018]**

1. **Object oriented analysis is an alternative methodology to soft systems methodology. Compare the two methods and support your answer with TWO (2) points on object oriented analysis and TWO 4**

***Object oriented analysis***

* If OOA is used data and processes are combined into objects
* OOA focuses on technical aspects of a system
* OOA considers the relationships between objects, classes, etc.
* Tools used in OOA include functional models, activity models, etc.
* If OOA is used systems can be developed rapidly
* If OOA is used systems can be developed cost effectively

***Soft systems methodology***

* If SSM is used data and processes are considered separately
* SSM focuses on user/people aspects of a system
* SSM considers wider issues in a social context such as the usability of a system, job satisfaction, the structure of an organisation
* Tools used in SSM include rich pictures, root definitions, concept diagrams
* It could take longer to analyse a system using SSM
* It could be expensive if SSM is used

**b). If you decide to perform object oriented analysis of the information system at *City Entertainment Centre* you will need to produce an activity model. Produce an activity model that illustrates ONE (1) business activity at *City Entertainment Centre*. Use the information provided in Question 2.**

* The business activity should be stated
* Business activities should be illustrated/bookings/sales/administration/advertising
* Processes should be illustrated/ticket booking/ticket sales/data processing/cancellations/refunds/payment to company/payments to staff/payments to performers/payments to catering suppliers
* Events that initiate actions/decisions should be illustrated/customer requests ticket/cancels/refund offered/payment
* The flow of events should be illustrated
* Accurate notation should be used

**[Sept 2018]**

1. **CATWOE analysis can be used to gather information about an organisation. Outline FOUR (4) elements of *City Entertainment Centre* that could be identified by CATWOE analysis. 4**

* Customers/clients associated with it
* Actors/agents associated with it
* Transformations/inputs/outputs/processes associated with it
* Worldview/internal/external factors/constraints associated with it
* Its owner/s
* Environment/economic. social, technological, ethical, political, legal, competitive, environmental, demographic factors associated with it

1. **Each of the elements that you identified in Question 3 a) can influence the development of an information system. Explain how THREE (3) of the elements that you have outlined in Question 3 a) might *negatively* influence the development of the information system at *City Entertainment Centre*. 6**

* Customers/clients - might not be happy with a new information system
* Actors/agents - might not be happy with a new system
* Transformations - an updated information system might have adverse effects on system inputs, outputs and processes
* Worldview - factors inside/outside the company might influence the development of a new system
* Owners - might decide not to develop a new system/hold back development of a new system
* Environment - financial, legal and ethical factors might mean that improvements to the information system are expensive

**[June 2018]**

**a). Compare OOA with a structured systems analysis design methodology such as SSADM. Your answer should make reference to THREE (3) features of object oriented analysis and THREE (3) features of SSADM. 6**

**OOA**

* System development can be undertaken quickly
* It can be undertakben more cost efficiently
* Software can be modified
* Software can be reused
* Software maintenance can be improved
* Consistency of modelling can be increased
* Communication between analysts/designers/programmers/ users can be improved
* A model can be constructed of the tasks that a system is required to perform/dynamic/object/functional models can be constructed
* It can identify a system’s user requirements
* It identifies a system’s functions
* It determines objects and their inter-relationships in a system
* It is used to decompose a complex system into understandable components

**SSADM**

* It can take longer to undertake than OOA
* It can be more expensive to undertake than OOA
* It is suitable for projects that have stable user requirements
* It focuses on processes rather than objects
* It uses tools such as dataflow diagrams/entity relationship diagrams/structure diagrams
* It uses less types of diagrams than are used than in OOA
* It is a highly structured methodology
* It takes a non-iterative approach, e.g. Waterfall
* It can be easier to manage than OOA due to clearly defined project phases
* Project phases have to be worked through sequentially
* It takes a high level overview and details of lower levels are then determined

**b). If you undertake object oriented analysis (OOA) at *MAS*, you will need to construct an object model.   
 Identify FOUR (4) elements of an object model. 4**

* Classes
* Relationships
* Attributes
* Inheritance
* Abstraction
* Encapsulation
* Modularity
* Hierarchy

**[March 2018]**

**a) Object oriented analysis could be used as an alternative methodology to a soft systems approach. Discuss SIX (6) benefits to the company if you use this approach. 6**

* Information system development could be undertaken quickly
* It could be undertaken more cost efficiently
* Software could be modified
* Software could be reused
* Software maintenance could be improved
* Consistency of modelling could be increased
* Communication between analysts/designers/programmers/
* users could be improved
* A model could be constructed of the tasks that an information system is required to perform/dynamic/object/functional models can be constructed
* It could identify an information system’s user requirements
* It could identify an information system’s functions
* It could determine objects and their inter-relationships in an information system
* It could be used to decompose a complex system into understandable components

**b). Describe how an Activity model, produced during object oriented analysis, could help analysis of the information system at Urban Water Call Centre. You should support your answer with FOUR 4 points. 4**

* It would model the business activities undertaken at the company.
* It would model events that initiate actions and decisions
* It would model the flow of events
* It would model the processes performed

1. **[December 2016]Identify THREE (3) models that are created when using an object modelling technique approach. (3)**

**[June 2016] Identify THREE (3) types of models (other than functional models) that are   
 produced when using an Object Modelling Technique. (3)**

**[Sample] There are there types of object models associated with Object Modelling technique.   
 Identify two and describe their purposes. (4)**

* The Object Model (OM) illustrates the object classes, their relationships and attributes and operations as a Class Diagram, which represents the static structure of the system
* The Dynamic Model (DM) illustrates the behavior of the system over time and the flow of control and events in Event-Trace Diagrams and State Transition Diagrams (State Charts)
* The Functional Model (FM) a set of DFDs that illustrate the internal processes independently from how these processes are performed.

1. **[December 2016] Suggest THREE (3) uses of a functional model in object oriented analysis. (3)**

**[June 2016]**

**Outline THREE (3) purposes of producing a functional model when performing object oriented analysis of an information system. (3)**

**[March 2016] Briefly explain what is meant by a functional model in relation to object-oriented analysis. (2)**

* The internal processes of a system
* How the processes are performed
* The main functions of a system
* The sub-functions of a system

1. **[March 2017]** **Describe FOUR (4) purposes of an Activity model that can be used for object oriented analysis. (4)**

**[September 2016] State THREE (3) items shown in an Activity Model. (3)**

* It illustrates the business activities of an organization
* It illustrates events that initiate actions and decisions
* It illustrates flow of events
* It illustrates processes

1. **[September 2017]**

**A systems analyst has decided to use object-oriented analysis as a tool to aid information systems analysis. Explain FOUR reasons for the systems analyst’s choice and identify TWO situations when object-oriented analysis is most suitable when object oriented analysis is most suitable. (6)**

**[March 2017] State SIX (6) strengths of object-oriented analysis. (6)**

**[December 2016] Describe FOUR (4) indicators of successful object oriented analysis. (4)**

**[June 2016] Explain why a systems analyst might prefer to use object oriented analysis rather than structured systems analysis. (4)**

**[December 2015 Sample] Provide THREE (3) reasons why Object Oriented analysis is used as information System Methodology. (3)**

* Reusability of analysis, objects, design and programming
* Improved communication among users, analysts, designers and programmers
* Increased consistency among the models developed
* Easy to understand
* More flexible and easier to make update in response to changing user requirements
* Systems can be developed more rapidly
* Systems can often be developed at a lower cost

**Suitable Situation:**

* When rapid development of a system is required
* When costs need to be kept to a minimum
* When flexibility of development is required
* When developing large scale applications
* When working with a complex system

1. **[September 2016]**

**Outline THREE (3) potential barriers to successful object oriented analysis. (3)**

**[December 2015 Sample] Suggest Three (3) weakness of Object Oriented Analysis. (3)**

* Has been accused of being too technical and complicated
* Limited to modeling and describing what should be done rather than how it should be done
* Processes and data flow are poorly illustrated and described

1. **[September 2017]**

**Object-oriented analysis and soft systems methodology are two different approaches to information systems analysis. Briefly describe the differences between the two approaches and support your answer with THREE (3) features of object-oriented analysis and THREE (3) features of soft systems (6)**

**[June 2017]**

**Object-oriented analysis and soft systems methodology are two different approaches to information systems analysis. Briefly describe the differences between the two approaches and support your answer with THREE (3) features of object-oriented analysis and THREE (3) features of soft systems methodology. (6)**

**[September 2016]**

**Explain the difference between object orientated analysis and structured systems analysis. You should support your answer with FOUR (4) points. (4)**

**[March 2016] Explain the difference between structured systems analysis and object-oriented analysis. You should support your answer with FOUR (4) points. (4)**

**[Sample] Identify TWO (2) differences between object-oriented analysis and SSADM. (2)**

* The tools used by each approach differ

**SSADM**

* SSADM is a structured method with very detailed rules and guidelines.
* In SSM data and processes are considered separately
* SSM focuses on user/people aspects of a system
* SSM considers wider issues in a social context such as the usability of a system, job satisfaction, the structure of an organisation
* Tools used in SSM include rich pictures, root definitions, concept diagrams
* A project can take longer to deliver if SSADM is undertaken.
* SSADM can prove to be more expensive to undertake.

**OOA**

* OOA is more flexible/it is easier to make updates in response to changing user requirements
* In OOA data and processes are combined into objects
* OOA focuses on technical aspects of a system
* OOA considers the relationships between objects, classes, etc.
* Tools used in OOA include functional models, activity models, etc.
* Systems can be developed rapidly if OOA if undertaken
* Systems can be developed at a lower cost if OOA is performed

1. **[September 2017]**

**Explain FOUR (4) aims of object-oriented analysis. (4)**

**[June 2017] Identify FOUR (4) tasks performed during object-oriented analysis. (4)**

**[March 2016] Outline FOUR (4) tasks that are performed during object-oriented analysis. (4)**

* An information system’s user requirements are identified
* An information system’s functions are identified
* Objects and their interrelationships in the system are defined
* A model of what the system is required to do is constructed
* A model creates an effective solution

**Topic 9 & Topic 10**

**[November 2019]**

**a). If you undertake SWOT analysis at *Techno Wearables* you will find out information about four factors that could affect the company. State FOUR (4) factors of SWOT analysis. 4**

* Strengths of Techno Wearables which could affect it favourably/which could lead to opportunities
* Weaknesses at Techno Wearables which could affect it negatively/which could lead to threats
* Opportunities which could affect Techno Wearables favourably
* Threats which could affect Techno Wearables negatively

**b).Select ONE(1) negative factor that you described in Question 7 a) and identify THREE (3) eamples of its at Techno Wearables. Also explain THREE (3) possible solutions to the examples that you have identified. Refer to the information provided in the Case Study.**

***Weaknesses***

* Out of date system
* Slow system
* Data loss
* Data corruption
* Network crashes
* DOS attacks

***Three possible solutions to weaknesses***

* Find the causes of system problems
* Remedy the causes of system problems
* Ensure that the new system is efficient
* Ensure that the new system is secure
* Ensure that the new system is robust/no data is lost
* New information system
* Financially secure
* Trained staff
* Demand for products
* More secure
* Train staff

***Threats***

* All staff have access to the system
* Rival competitors
* Losing customers
* Lack of security/malware
* DOS attacks

***Three possible solutions to threats***

* New information system
* More secure/access rights/anti-malware, etc.
* Retain customers
* Determine if threats could be converted into strengths
* Determine if threats could be converted into opportunities

**a). If you undertake *PEST analysis* at *Techno Wearables* one of the areas that you would analyse would be the potential effects of technological influences on the development of a new information system. Discuss FIVE (5) technological influences at *Techno Wearables*. 5**

* The information system is out-of-date
* The information system is inefficient
* Some staff who use the information system are insufficiently trained
* The information system is insecure
* The timescale for implementing a new system might could be unrealistic
* Requirements/timescales/resources/budget/staff training/ implementation of the technology is not planned adequately
* Only one solution for implementing technology is considered
* System components are developed individually which could lead to possible system incompatibility/extra costs/extra time/inefficiencies
* Designs for a new information system are complex
* Developers are inexperienced

**b). Describe FIVE (5) solutions that you would recommend for *Techno Wearables* after you analysed technological influences on the company. 5**

* Identify problem/issues
* Document the problems/issues
* Produce a requirements specification that details the problems/issues
* Document solutions/ recommendations in a requirements specification
* Reach agreement with the CEO that the solutions/recommendations are feasible
* Analyse/document the strengths at Techno Wearables
* Analyse/document opportunities within Techno Wearables

**[Sept 2019]**

**a). Using the information provided in the case study, outline SIX (6) weaknesses that could be discovered if a SWOT analysis is undertaken at *Central Metro Council*. 6**

* Lack of communication between departments
* Large volumes of data
* Inefficient information system
* Inaccurate data
* Hardware problems
* Software problems
* Network problems
* Data entry problems
* Lack of system security training
* Security issues/malware
* Insecure
* Unreliable

**b). Describe FOUR (4) ways of resolving the weaknesses that you outlined in Question 7 (a). 4**

* General solutions – implement a new information system/ensure integrity of data/staff training, etc.
* The weaknesses could be converted into strengths
* The weaknesses can be converted into opportunities
* Strengths can be determined and matched with opportunities

**a). If PEST analysis is undertaken at Central Metro Council it will examine the impact of economic influences on the development of the information system. Describe FOUR (4) economic influences that could have a negative impact on the development of the information system. 4**

* Interest rates
* Exchange rates
* Taxation issues
* International financial issues
* Recession
* Demand
* Supply
* Market growth
* Market decline
* The labour market
* Government policies and regulations

**b). Recommend THREE (3) solutions to overcome negative economic influences on the development of the information system at the council. 3**

* Produce a requirements specification which identifies and documents the negative political influences
* Produce a requirements specification which identifies solutions to the negative political influences
* A systems analyst(s) and stakeholders should agree that solutions to the negative political influences are feasible
* General solutions, e.g. potential opportunities, etc.

**c). Suggest THREE (3) other potential influences, other than the economic influences, on the development of the council’s information system that could be revealed by PEST analysis.**

* Political influences
* Society’s influences
* Technological influences

**[June 2019]**

**a). Outline FIVE (5) strengths of Urban Delivery Services. Use the information provided in Question 1.**

* Established company
* Successful company
* Hard working staff
* Staff communicate well
* Large number of customers
* Sufficient finance
* Expansion plans
* Plans to implement an improved information system
* Improved information system will satisfy customers
* Improved information system will aid couriers/other staff

**b). In addition to identifying strengths at Urban Delivery Services, describe FIVE (5) other reasons to undertake SWOT analysis at the company. 5**

* Determine weaknesses
* Determine opportunities
* Determine threats
* Determine if strengths can be matched with opportunities
* Determine if threats could be converted into strengths
* Determine if threats could be converted into opportunities

**c). If you perform PEST analysis at Urban Delivery Services it will reveal various influences that could affect the development of the information system. Suggest FOUR (4) influences that will be revealed. 4**

* Political influences
* Economic influences
* Social influences
* Technology influences

**d). State one of the influences that you identified in Question 8 a) and outline THREE (3) ways that the influence could impact negatively on the development of the information system. 3**

***Political influences***

* Government regulations
* Changes of government
* Government grants
* Pressure groups
* Wars and conflicts
* Laws/regulations
* Limitations to expansion
* Limitations to developing a competitive strategy
* Limitations to potential mergers

***Economic influences***

* Interest rates
* Exchange rates
* Taxation issues
* International financial issues
* Recession
* Demand
* Supply
* Market growth
* Market decline
* The labour market
* Government policies and regulations

***Society influences***

* Advertising/marketing/publicity
* Lifestyle trends
* Consumer attitudes and opinions
* A brand, company, or technology image
* Consumer buying trends
* Fashion and role models
* Major events
* Cultural factors
* Ethical factors
* Environmental factors

***Technology influences***

* Technology is out-of-date/poor quality
* Technology is operated by inexperienced/insufficiently trained staff
* Timescales for implementation of the technology are unrealistic
* Requirements/timescales/resources/budget/staff training/ implementation of the technology is not planned adequately
* Only one solution for implementing technology is considered
* System components are developed individually which could lead to possible system incompatibility/extra costs/extra time/inefficiencies
* There is insufficient funding available for the technology
* Designs for a new system are complex
* Developers are inexperienced

**c). Recommend THREE (3) solutions to manage the negative influences that you have outlined in Question 8 b) 3**

* Produce a requirements specification which identifies and documents the negative political/economic/society/technology influences
* Produce a requirements specification which identifies solutions to the negative political/economic/society/technology influences
* A systems analyst(s) and stakeholder(s) should agree solutions to the negative political/economic/society/technology influences
* General solutions, e.g. potential opportunities.

**[March 2019]**

**a). Outline THREE (3) types of information, other than the company’s weaknesses, that you will discover if you undertake SWOT analysis at The Body Restoration Centre. (3)**

Strengths of the clinic

* Opportunities for the clinic
* Threats to the clinic

b). **Use the information provided in the introduction to Question 1 to assist you and identify FOUR (4) weaknesses at the clinic. Also recommend THREE (3) solutions to deal with the weaknesses that you have identified. (7)**

***Weaknesses***

* The system is inefficient
* The system needs to be more secure
* The network is sometimes slow
* The network sometimes crashes
* Data loss
* Data duplication/duplication of data regarding appointments, cancellations, stock orders
* Inaccurate data/inaccurate data on patients and stock
* Unclear cause of various information system problems
* Staff worried about their jobs
* Staff worried about lack of time to learn how to use a new information system

***Solutions***

* Find the causes of system problems
* *Remedy the causes of system problems*
* Ensure that the new system is efficient
* Ensure that the new system is secure
* Ensure that the new system is robust/no data is lost
* Ensure that no data is duplicated
* Ensure that data is accurate
* *Reassure staff that there are no job losses planned*
* *Plan for sufficient time to be available for staff to learn how to use a new system*
* Match strengths with opportunities/put increase revenue towards improving/maintaining the information system/use popularity to increase business/supportive management facilitate lass worried staff and potential improved productivity/new information system will facilitate satisfied c customers and staff.

**[November 2019]**

**a). If you undertake a demographic analysis of the information system’s users at *Techno Wearables* it could result in an interface that will support the user’s needs much more than the current information system does. Explain how *demographic analysis* can facilitate an improved information system interface. 6**

* It can facilitate a design that is appropriate for a user’s age group
* It can facilitate a design that is appropriate for a user’s gender
* It can facilitate a design that is appropriate for a user’s level of education
* It can facilitate a design that is appropriate for a user’s position at Techno Wearables
* It can facilitate a design that is appropriate for a user’s cultural background
* It can facilitate a design that is appropriate for a user who has accessibility requirements
* It can facilitate a design that is appropriate for a user’s technology training and knowledge
* It can facilitate a design that is appropriate for a user’s experience with a similar systems*/product*

**b). Describe FOUR (4) potential advantages to the users of a new information system interface at *Techno Wearables*.**

* It could help them to be more efficient/productive
* It could provide greater job satisfaction
* It could help to raise their morale/provide motivation
* It could help reduce training needs
* It could help prevent them from making errors

**[December 2018]**

* One of the purposes of undertaking SWOT analysis is to analyse threats to Mango Mobile System. Explain THREE(3) other reasons to undertake SWOT analysis at the company.
* To identify the company’s strengths
* To identify the company’s weaknesses
* To identify any opportunities that the company has
* Use the information provided in the introduction to Question 1 to assist you and identify FOUR(4) threats to the company. Also recommend THREE(3) solutions to deal with the threats that you have identified.
* Threats
* Slow system
* Data loss
* Data corruption
* Malware
* Denial of service attacks
* Inefficient system
* Unreliable system
* Competitor and new information system
* Potential loss of customers

**Solutions**

* Converts threats into strengths
* Converts threats into opportunities
* General remedies e.g. successful company/ experienced company/ doubling of sales – revenue for a new system/demand for products

1. **If you undertake PEST analysis at Mango Mobile Systems you will analyse four influences that could have a negative effect on the development of a new information system. Identify the FOUR(4) influences. (4)**

* Political influences
* Economic influences
* Society’s influences
* Technology influences

1. **State ONE(1) of the influences that you have identified in Question a) and explain FIVE(5) effects that the influence could have on the developments of the information system. 6**

**Political influences**

* Advertising/ marking/publicity
* Lifestyle trends
* Consumer attitudes and opinions
* A brand, company, or technology image
* Consumer buying trends
* Fashion and role models
* Major events
* Cultural factors
* Ethical factors
* Environmental factors

**Economic influences**

* Interest rates
* Exchange rates
* Taxation issues
* International financial issues
* Recession
* Demand
* Supply
* Market growth
* Market decline
* The labor market
* Government policies and regulations

**Society’s influences**

* Advertising / marketing / publicity
* Lifestyle trends
* Consumer attitudes and opinions
* A brand, company, or technology image
* Consumer buying trends
* Fashion and role models
* Major events
* Ethical factors
* Environmental factors

**Technology influences**

* Technology is out of date/ not good quality
* Technology is operated by inexperienced staff/lack training
* Timescales for implementation of the technology are unrealistic
* Requirements/timescales/resources/budget/staff training/implementation of the technology is not planned adequately
* Only one solution for implementing technology is considered
* System components are developed individually which could lead to possible system incompatibility. Extra costs/extra time/inefficiencies
* There is insufficient funding available for the technology
* Designs for a new system are complex
* Developers are inexperienced

1. **You use THREE (3) fact-finding methods to discover information about the information system’s interface at *Mango Mobile Systems*. State THREE (3) types of fact-finding methods and explain a feature of each type.**

**Interview**

* A considerable amount of information can be collected/information from serval sources at different levels can be collected/ a rapport can be established with the interviewee/ questions can be clarified/ information collected from other sources can often be verified/problems can be uncovered that might otherwise not be discovered/leads can be obtained for collecting further information.

**Observation**

* Can improve interviewer understanding of the working environment/validates data gathered from other sources

**Questionnaire/survey**

* Can be answered when convenient for the interviewee/ a large number of people can be contacted/easier to administer, document.

**Focus group**

* Questions can be clarified/can be used to gather data from several sources at one time/a range of responses can be collected.

**Documentation**

* Can clarify understanding/not intrusive/inexpensive/ good source of background information/may provided information not accessible by other information collection methods/convenient.

1. **The user’s experiences of the information system’s interface at the company should be stated in a usability test of the interface. Explain FOUR(4) measures of the usability of the interface.**

* It should be aesthetically pleasing
* It should be enjoyable to use
* It should motivate a user
* It should engage a user
* It should be reliable

**[September 2018]**

1. **Identify SEVEN (7) strengths of *City Entertainment Centre* that could be discovered if you undertake a SWOT analysis. Use the information provided in Question 1.**

* A wide variety of entertainment
* Affordable ticket prices
* Convenient location of each theatre
* It is a well-known company
* Increasing number of people visiting each theatre
* High number of ticket sales
* Sufficient funding
* The Managing Director is forward thinking
* The Managing Director wants the information system improved

1. **State THREE (3) other aspects of *City Entertainment Centre* that you will find if you undertake SWOT analysis. (3)**

* Weaknesses/inefficient information system/insecure information system/constraints   
  uncovered by CATWOE/issues uncovered by stakeholder analysis
* Opportunities/ good reputation which could be used to establish a competitive advantage   
  OR to expand OR to increase sales/good locations which could be used to meet new   
  requirements of audiences OR to expand
* hreats/problems arising as a result of an insecure information system/problems arising as   
  a result of an inefficient information system/competition from other theatres

**[June 2018]**

**a). Using the information provided in Questions 1, 2, 3 and 4 suggest SEVEN (7) weaknesses that that could be discovered if you undertake a SWOT analysis at *MAS*. (7)**

* Inefficient service
* Large data volumes
* Increasing number of tourists
* Inaccurate data
* Double-booked accommodation
* Enquiries/cancellations/complaints
* Insecure system
* Inefficient system
* Unreliable system
* Inefficient communication
* Staff concerns/morale/potential loss of jobs
* Various constraints uncovered by CATWOE
* Issues uncovered by stakeholder analysis

**b). Describe THREE (3) things that you could do to deal with the weaknesses that you found in question 7 (a). (3)**

* The weaknesses could be converted into strengths
* The weaknesses can be converted into opportunities
* Strengths can be determined and matched with opportunities

**[March 2018]**

**a). You have been instructed to perform a SWOT analysis at *Urban Water Call Centre*. Justify your reasons for undertaking SWOT. (5)**

* It can be used to provide a framework for reviewing the strategy, position, direction of an organisation
* It can be used to identify the company’s strengths
* It can be used to identify the company’s weaknesses
* It can be used to identify any opportunities for the company
* It can be used to identify potential threats to the company
* It can be used to gather/structure/present/review information that specifies the aims of the call centre
* It can be used to determine the company’s potential
* It could be used to match strengths and opportunities
* It can be used to convert weaknesses/threats into strength/opportunities

**b). Outline FIVE (5) potential outcomes of your SWOT analysis at *Urban Water Call Centre*. You can refer to the information provided in questions 1 and 2. (5)**

* It could determine whether or not the call centre has a good/bad reputation
* It could determine whether the call centre has sufficient finance/insufficient finance
* It could determine whether the call centre has loyal customers
* It could determine the staff who have considerable experience/knowledge
* It could determine the advantages that the call centre has over other companies/competitors
* It could determine which competitors could be a threat
* It could determine which tasks are performed well/poorly
* It could determine what improvements should be made
* It could determine a range of internal threats
* It could determine a range of external threats
* It could determine which strengths could be matched with opportunities
* It could determine strategies to convert weaknesses/threats into strengths and/or opportunities

**2.(a) Your analysis could involve using a PEST analysis. One of the purposes of PEST is to determine the influence of technology on an organisation. Explain THREE (3) other purposes of undertaking PEST analysis. (3)**

* To determine social influences
* To determine economic influences
* To determine political influences

**b). Explain how technology could impact negatively on the development of the information system at *Urban Water Call Centre* and support your answer with FOUR (4) points. (4)**

* Technology is out-of-date/not good quality
* Technology is operated by staff who are inexperienced/lack a technical background/lack training/lack technical knowledge
* Timescales for implementation of the technology are unrealistic
* There is a lack of planning
* Requirements/timescales/resources/budget/staff training/ implementation of the technology is not planned/not planned adequately
* Only one solution for implementing technology is considered
* System components are developed individually which could lead to possible system incompatibility/extra costs/extra time/inefficiencies
* There is insufficient funding available for the technology
* Designs for a new system are complex
* Systems developers are inexperienced

**c). Suggest THREE (3) solutions to overcome negative impacts of technology. (3)**

* A requirements specification should be produced that documents the negative technology impacts
* The requirements specification should identify solutions to the negative technology problems
* The solutions must be agreed to be feasible
* Staff should be trained how to use the information system/experienced
* The information system should not be complex
* The information system should be efficient
* The information system should be reliable
* The information system should be robust
* The information system should be secure
* Hardware/software should be fit for purpose/up to date
* Hardware/software should be compatible
* A new/improved information system should be introduced appropriately
* Sufficient funding should be available for development

**I. Knowledge Based View of Organisation**

**[September 2016]**

**Briefly explain why tacit knowledge is an important asset for an organisation. (3)**

* It facilitates the identification of key opportunities for an organisation.
* It facilitates the identification of potential threats to an organisation
* It enables effective performance/ productivity

**[December 2015 sample]**

1. **Why is it important to consider an organization’s knowledge base when undertaking information systems analysis? (3)**

**[Sample] Describe one reason why an organization needs to manage it knowledge. (2)**

* The knowledge based view of an organization (what it does, how it does it and why) should be considered as one of the most important resources of the organization.
* It can provide an organization with competitive advantages
* It can provide an organization with high standard performance
* It is one of the most flexible resources because it can increase over time.
* It can share between staff and between departments in an organization and this helps to improve an organization’s competency.

**[June 2016]**

**State FOUR (4) Types of explicit knowledge that can be identified at an organization. (4)**

* Knowledge that is used every day
* General knowledge
* Specific knowledge
* Knowledge of processes and procedures

**II. PEST ANALYSIS**

**[September 2017]**

**A retail company is planning to develop a new information system as its current system is becoming outdated. However, the Manager is aware that economic and technical factors could potentially have a negative impact on the development of an information system. Suggest THREE (3) economic factors and THREE (3) technical factors that could have a negative impact. (3)**

**[March 2016] State FOUR (4) economic factors that influence the development of an information system. (4)**

* Demand
* Supply
* Market growth
* Market decline
* The labour market
* Government policies and regulations
* Interest rates
* Exchange rates
* Taxation issues
* International financial issues
* Recession

**THREE (3) technical factors**

* Technology is out-of-date/not good quality
* Technology is operated by staff who are inexperienced/lack a technical background/lack training/lack technical knowledge
* Timescales for implementation of the technology are unrealistic
* There is a lack of planning
* Requirements/timescales/resources/budget/staff training/ implementation of the technology is not planned/not planned adequately
* Only one solution for implementing technology is considered
* System components are developed individually which could lead to possible system incompatibility/extra costs/extra time/inefficiencies
* There is insufficient funding available for the technology
* Designs for a new system are complex
* Developers are inexperienced

**[September 2017]**

**Explain FOUR (4) solutions that should be taken to reduce the negative impact of economic and technical factors. (4)**

**[March 2016]**

**State THREE (3) actions that reduce the negative economic and technological impacts on an information system.**

**(3)**

* All issues/problems that have been identified should be documented.
* A Requirements Specification should be produced.
* Solutions and recommendations should be documented.
* An agreement needs to be reached that the suggested solutions and recommendations are feasible.

1. **Identify THREE (3) social issues that could be uncovered at an organisation using a socio-technical approach such as ETHICS.**

**(3)**

* A lack of communication between staff
* A lack of training
* A lack of career progression
* Tasks are boring/repetitive
* Low morale
* Work overload

**[September 2016]**

**Suggest FOUR (4) potential problems that could affect the development of an orgnisation’s information system. (4)**

* Laws and regulations
* Opportunities and limitations to expansion
* Opportunities and limitations to developing a competitive strategy
* Opportunities and limitations to potential mergers

**[September 2016]**

**Potential political problems, as discussed in Q 8 a, can be discovered by using PEST analysis. State THREE (3) other advantages of using PEST analysis. (3)**

* It can be used to discover economic impacts on the development of a new information system.
* It can be used to discover the impact of society on the development of a new information system
* It can also be used to discover the impact of technology on the development of a new information system.

**[June 2016]**

**Identify FOUR (4) factors that are assessed when PEST in undertaken during information systems analysis. (4)**

* Political factors
* Economic factors
* Sociological factors
* Technological factors

**[June 2016]**

**Explain how the assessment of PEST factors can help SWOT analysis. (4)**

The results of PEST analysis can

* It can identify issues/opportunities to expansion.
* It can identify issues/opportunities to developing a competitive strategy.
* It can identify issues/opportunities to potential mergers.
* It can identify potential constraints and limitations of various political influences

**[March 2016]**

**State THREE (3) technological factors that can limit the development of an information system.**

**[June 2016]**

**Outline THREE (3) ways that technology could impact negatively on the development of an information system. (3)**

* Lack of finance
* Lack of technical knowledge
* Lack of quality resources
* Unrealistic timescales for implementation
* Lack of training

**[June 2016]**

**Identify THREE (3) monetary influences that have the potential to affect the development of an organization’s information system. (3)**

* Internet rates
* Exchange rates
* Taxation
* International monetary issues
* Recession

**[March 2016]**

**Outline FOUR (4) advantages of PEST analysis. (4)**

**[December 2015 Sample]**

**State Four (4) reasons why PEST is used as an analytical technique.**

* Considers political factors
* Considers Economic factors
* Considers Social factors
* Considers Technological factors
* Political factors assess political influence on an organization
* Economic factors assess local, national, and global influence
* Sociological factors assess ways in which a society can influence an organization
* Technological factors assess the impact of new and emerging technology on an organization

**[December 2015 sample]**

**Suggest FOUR economic factors that can influence an information system. (4)**

* Local economy situation
* local economy trends
* global economies and trends
* taxation issues
* seasonal trends
* specific industry factors
* interest and exchange rates
* international trade/monetary issues
* recession
* environmental factors, e.g. the weather

**Discuss TWO (2) benefits of analysing the economic factors of an organization.**

**Explain the purpose of analyzing economic factors that affect or have the potential to affect on an organization. (2)**

* It assesses the local influence on an organization.
* It assesses the national influence on an organization.
* It assesses the global influence on an organization.
* It can identify taxtation issues.
* It can identify seasonal trensds.

**[December 2015 Sample]**

**Provide FOUR (4) examples of technical problems that limit an organisation’s information system   
 development. (4)**

* To seek information relating to Rapid development
* To seek information relating to Out-of- date skills
* To seek information relating to Out- of-date technology
* To seek information relating to Technology laws

**[March 2016]**

**Identify THREE (3) social issues that might be uncovered at an organisation if ETHICS is used. (3)**

* There is a lack of communication between staff.
* There is a lack of training and career progression
* Tasks are boring and repetitive tasks
* Morale is low
* Staff have too much paperwork.

**[September 2015]**

**Suggest FOUR (4) reasons why social factors should be considered during information system  
 analysis. (4)**

* It provides information on how society can influence an organization
* It can identify the influences of advertising and publicity
* It can identify the influences of lifestyle
* It can identify the influences of consumer attitudes and opinions
* It can identify the influences of a brand, company, technology images
* It can identify the influences of consumer buying trends
* It can identify the influences of fashion and role models
* It can identify the influences of cultural factors
* It can identify the influences of ethical factors
* It can identify the influences of environmental factors

**III. SWOT**

**[September 2017]**

**Mega firm is a successful company that has been manufacturing computers for 25 years. It is well   
 known and its many customers trust the reliability of its products. However, in the past three   
 months, sales figures have fallen. The Managing Director has been advised to undertake a SWOT   
 analysis.**

**Outline THREE (3) strengths of the company that might be revealed by the SWOT analysis. (3)**

* It has a good reputation
* Established company/brand/product
* Loyal customer base
* Experience/knowledge of the staff
* Sufficient finance
* Advantages that it has over other organisations
* Tasks that are performed well
* Good assets/facilities/location
* Effective information system

1. **The SWOT analysis might also reveal weaknesses. Outline THREE (3) examples of weaknesses that might be exposed. (3)**

* Financial/economic factors
* Technological factors
* Ineffective marketing/advertising

1. **Suggest THREE (3) threats could be revealed by the analysis. (3)**

* Economic factors/funding
* Competition from other companies
* Market trends
* Political factors
* Environmental factors

1. **Recommend a strategy that could be used by the company to improve its sales. (1)**

* Match strengths to opportunities
* Convert weaknesses or threats into strengths or opportunities

**[June 2017]**

**A systems analyst performs a SWOT analysis to discover potential threats to an organisation.   
 Outline FIVE (5) examples of potential threats. (5)**

* Factors relating to customers
* Factors relating to trends
* Factors relating to competitors
* Factors relating to finance
* Factors relating to politics
* Factors relating to society
* Factors relating to culture
* Factors relating to technology
* Factors relating to the environment
* Factors relating to the Media
* Legal factors

1. **A SWOT analysis can also be performed to find opportunities that could provide advantages for an organisation. Identify FIVE (5) examples of opportunities. (5)**

* Opportunities to develop/use any competitive advantages
* Opportunities to make improved sales
* Opportunities to make improved profits
* Opportunities to meet new requirements of customers
* Opportunities related to economic trends
* Opportunities to maintain/further develop activities that are performed well at an organisation
* Opportunities to use various assets
* Opportunities for expansion/growth
* Opportunities to develop/use the experience/knowledge of staff

**[March 2017]**

**Outline FIVE (5) political influences that could have a negative influence on the development of an information system. (5)**

* Government regulations
* Changes of government
* Government grants
* Pressure groups
* Wars and conflicts
* Laws/regulations
* Opportunities for expansion
* Limitations to expansion
* Opportunities to develop a competitive strategy
* Limitations to developing a competitive strategy
* Opportunities for potential mergers
* Limitations to potential mergers

**[March 2017]**

**Sample] A team of systems analysts will be undertaking SWOT analysis of an organisation’s   
 information system. Explain FOUR (4) reasons why the analysts have decided to**

**use this analysis technique. (4)**

* To discover the strengths of the information system
* To discover the weaknesses of the information system
* To discover any opportunities that could help to improve with the information system
* To discover any threats to the information system

1. **Recommend THREE (3) solutions to overcome negative political influences on the development of an information system. (3)**

* A requirements specification must be produced that documents the adverse political problems
* A requirements specification must identify solutions to the adverse political problems
* Agreement should be reached between systems analysts and stakeholders that solutions to the adverse political problems are feasible

1. **Suggest TWO (2) types of knowledge that provide a competitive advantage and high standards**

**of performance for an organisation. (2)**

* Tacit knowledge
* Explicit knowledge

**[September 2016]**

**Describe FOUR (4) potential outcomes of a successful SWOT analysis. (4)**

* Strengths within an organisation are determined
* Weaknesses within an organsation are determined
* Opportunities within an organisation are determined
* Threats within an organisation are determined

**[September 2016]**

**Suggest TWO (2) techniques (but NOT interviews) that a systems analyst can use to perform SWOT   
 analysis. (2)**

* Questionnaires can be issued to staff
* Observations of work practices and procedures can take place
* Focus groups can be held

**[March 2016]**

**Explain how SWOT as a technique can facilitate information system analysis. (4)**

* An organisation’s strengths can be determined
* An organisation’s weaknesses can be determined
* Opportunities for an organisation can be determined
* Threats to an organisation can be determined

**[September 2017]**

**The systems analysts referred to in Q7a) might encounter problems when performing SWOT   
 analysis. Describe SIX (6) potential problems that might prevent the analysts from undertaking   
 SWOT analysis successfully. (6)**

* If a system is complex and an organisation large, it might be difficult to perform analysis
* It might be too expensive to undertake this technique successfully
* There might not be enough time to compete the analysis/it may take longer than other analysis methods
* It may be a difficult to manage this analysis technique
* Stakeholders might be uncooperative in providing information
* Information might be difficult to determine
* Not all of the required information is determined/incorrect information

**[December 2015 Sample]**

**Identify THREE (3) aims of SWOT analysis. (3)**

* To discover an organization’s Strengths
* To discover an organization’s Weakness
* To discover an organization’s Opportunities
* To discover an organization’s Threats

**Topic 11**

**[Sept 2019]**

**a). Heuristic evaluation and usability testing are two informal evaluation methods that could be used to evaluate the information system’s interface at *Central Metro Council*. Describe TWO (2) advantages of heuristic evaluation and TWO (2) advantages of usability testing. 4**

***Advantages of heuristic evaluation***

* Facilitates understanding
* Facilitates evaluation
* Identifies usability problems
* Can be more thorough than usability testing
* Major and minor problems can be identified in different areas
* Can be used at any stage of development process

***Advantages of usability testing***

* Feedback provided on how a user uses a system
* Can be used to find major problems
* Effective at testing the functionality of an interface
* Finds problems that relate to actual users
* Can identify problems in specific areas
* Able to identify aspects that are missing
* Qualitative data can be collected

**b). Describe TWO (2) disadvantages associated with heuristic evaluation and**

**TWO (2) disadvantages associated with usability testing. 4**

***Disadvantages of heuristic evaluation***

* Requires the use of expert evaluators
* Can fail to highlight all possible problem
* Usually unable to identify aspects that are missing

***Disadvantages of usability testing***

* Not impartial
* Sometimes not thorough enough
* Minor problems are not always identified
* Usually undertaken in the later stages of development process
* Not all functionality problems are discovered

**c). State TWO (2) other informal evaluation methods that could be used to evaluate the council’s information system interface. 2**

* Predictive modelling
* Guidelines review
* Consistency inspection
* Critical event analysis
* Dialogue error analysis
* Usability testing
* Expert reviews

**[September 2017]**

**Interviewing is one of the methods that can be used to gather information about users and their work tasks. Explain THREE (3) benefits and THREE (3) disadvantages of conducting an interview as an information gathering method. (6)**

**Benefits of interviewing**

* It is a direct method of collecting information
* Allow detailed questions to be asked
* Opinions, feelings and perceptions might be offered
* It enables accuracy
* Problems can be identified
* Can aid in-depth understanding
* Ambiguities can be clarified
* Can achieve a high response rate

**Disadvantages**

* It is a time-consuming method
* Interviewees might be unavailable
* Quality of data might depend on the skills of the interviewer
* Interviewer may be biased – leading questions
* Data will need to be documented – may need to be done post interview
* May be more expensive

1. **Identify FOUR (4) features of an information system interface that engages its user. (4)**

* Intuitive
* Clear, simple features
* Instant feedback
* Guided actions
* Accessible
* Consistent

**[September 2017]**

**Analysis of an information system’s interface is essential to meet the requirements of the users   
 who will use the interface. Explain how analysis of an interface will support the needs of users   
 and support your answer with FOUR (4) points. (4)**

* It will determine how easy an interface is to use
* It will determine whether an interface is consistent
* It will determine whether an interface is efficient
* It will determine whether an interface is reliable

**[September 2017]**

**[September 2016] Evaluate the use of demographic data analysis in improving the design of an   
 information system’s interface. Suggest THREE (3) advantages and THREE (3) disadvantages of   
 applying it to the improvement of interface design. (6)**

**Advantages**

* It helps facilitate a design that is appropriate for a user’s age group
* It helps facilitate a design that is appropriate for a user’s gender
* It helps facilitate a design that is appropriate for a user’s level of education
* It helps facilitate a design that is appropriate for a user’s position at an organisation
* It helps facilitate a design that is appropriate for a user’s cultural background

**Disadvantages**

* It is only effective if accurate information is gathered/analysed
* It is only effective if sufficient information is gathered/analysed
* Different groups of users might have different needs
* A combination of needs of different groups of users might be merged into a single group of users
* The needs of all users might not be met

**[September 2017]**

**Recommend TWO (2) methods, other than interviewing, that could be utilised to gather information   
 about the user’s views of an organisation’s information system and provide an example of when it   
 would be appropriate to use each method. (4)**

* Focus group
* Observation
* Questionnaire/survey
* Documentation
* Focus group – when information from several sources is required/when a range of responses is required
* Observation – when an understanding of the working environment is required/facilitates validation of information gathered from other sources
* Questionnaire, survey – when a large number of people need to be contacted/if anonymity is required/less time-consuming/a wide range of data can be collected
* Documentation – non-intrusive/background information/can provide information inaccessible by other information gathering methods

**[June 2017]**

**PEST analysis can identify influences that society has on an organisation. Outline FOUR (4) such   
 influences. (4)**

* Advertising/marketing/publicity
* Lifestyle trends
* Consumer attitudes and opinions
* A brand, company, or technology image
* Consumer buying trends
* Fashion and role models
* Major events
* Cultural factors
* Ethical factors
* Environmental factors

**[June 2017]**

**Identify THREE (3) other influences on an organisation that can be identified by a PEST analysis. (3)**

* Political influences
* Economic influences
* Technological influences

**[June 2017]**

**Recommend THREE (3) tasks that should be performed when a PEST analysis has been completed.   
 (3)**

* Problems/issues that have been identified should be documented
* A requirements specification should be produced that contains information about the problems/issues
* Solutions/recommendations to the problems/issues should be documented in a requirements specification
* Systems analysts and stakeholders should agree that the solutions/recommendations are feasible

**[June 2017]**

**Information systems analysis can include the analysis of end users. Briefly describe FIVE (5) work-related characteristics of a user of an organisation’s information system. (5)**

* A user’s organisation-specific knowledge
* Their familiarity with the requirements of a task
* How frequently they use the information system
* Their expertise level/novice/experienced
* Their familiarity with specific hardware and software
* Their technology skills/high level technology skills/low level technology skills

1. **Empirical evaluation methods can be used to evaluate an information system’s interface. State FIVE (5) empirical evaluation methods. (5)**

* Interviews
* Questionnaires
* Observations
* Focus groups
* Controlled user tests

**[March 2017]**

**Briefly explain what is meant by user analysis and provide TWO (2) examples of this analysis. (3)**

* User work skills
* User work knowledge
* User demographics
* User organization knowledge
* User familiarity with a task
* User expertise level
* Characteristics of a user’s job

**Briefly explain what is meant by task analysis and provide TWO (2) examples of this analysis. (3)**

* Task workflow
* Distribution of work
* A user’s work skills

**[March 2017]**

**Observation is one of the methods that can be used to gather information about users and work tasks. Describe THREE (3) benefits and THREE (3) disadvantages of using observation as an information gathering method. (6)**

**Benefits of observation**

* It is a direct method of collecting information
* Enables accuracy
* Problems can be identified
* Users are available
* Allows access when it might not be possible to use interviews or questionnaires
* Can aid in-depth understanding
* The time it takes to perform tasks can be measured
* It is useful method if there is no documentary evidence

**Disadvantages of Observation**

* Opinions cannot be observed
* It is a time-consuming method
* A solution to an identified problem cannot be obtained just by observation
* Users might feel uncomfortable if they are observed
* Some people may be nervous and make errors that they would not normally make
* It is not always an efficient method for capturing quantitative data for analysis

1. **[September 2016] Identify THREE (3) aims of user analysis. (3)**

* To determine the knowledge of interface users
* To determine the skills of interface users
* To determine organization specific skills
* To determine organization specific knowledge
* To determine the cognitive styles of users
* T determine the capabilities of users

**[June 2016]**

**Identify FOUR (4) aims of task analysis. (4)**

* To identify task workflow
* To identify the distribution of work
* To identify user’s work skills
* To identify the frequency of use of technology
* To identify the order in which work tasks are performed.

**[June 2016]**

**Suggest THREE (3) factors that could be identified by the analysis of demographic data. (3)**

* The ages of users are identified
* The gender of users is identified
* User’s levels of education are identified
* User’s positions in an organisation are identified
* User’s cultural backgrounds are identified

**[March 2016]**

**State THREE (3) reasons for why it is important to analyse an information systems’ interface. (3)**

* It determines whether how easy an interface is to use
* It determines whether an interface is consistent
* It determines whether an interface is efficient
* It determines whether an interface is reliable
* Frequency of use of technology
* The order in which tasks are performed

1. **Describe FOUR (4) advantages to an organisation if there is an efficient interface of its information system. (4)**

* It can increase productivity
* It can reduce training costs
* It can reduce maintenance costs
* It can prevent user errors
* It can contribute to job satisfaction

**[March 2016]**

**Identify THREE (3) results of task analysis. (3)**

**[Sample] Identify THREE aspects of a task that can be discovered by undertaking a task analysis. (3)**

* Task workflow
* Distribution of work
* User’s work skills
* Frequency of use of technology
* Ordering of tasks

**[December 2015 Sample]**

**State THREE (3) tasks that should be performed during the analysis and specification of** **requirements for developing a human computer interface. (3)**

* Problem statement definition
* User analysis
* Task analysis
* Requirements specification. (including a usability specification)
* Modelling the interface
* Design

**[December 2015 Sample] [December 2014]**

**Briefly explain what is meant by task analysis and user analysis and provide ONE (1) example of   
 each form of analysis. (4)**

* Task analysis identifies various aspects of tasks. For example, task workflow/ distribution of work/a user’s work skills/frequency of use of technology/the order in which tasks are performed
* User analysis identifies the characteristics of interface users. For example, their skills and knowledge, organisation specific skills

**[December 2015 Sample]**

**Identify FOUR (4) types of demographic data associated with system users. (4)**

* Age
* Gender
* Educational level
* Position at the organization
* Cultural background
* Any special requirements
* Technology training and knowledge
* Experience with similar systems/products

**[September 2015]**

**Identify FOUR (4) ways that an organization’s stakeholders’ interests and characteristics could be   
 determined by a system analyst. (4)**

* Interviews could be undertaken with staff
* Questionnaires could be issued to staff
* Focus group could be held with staff
* Observation

1. **[Sample] Identify THREE characteristics of an interface user that can be discovered by undertaking a User Analysis. (3)**

* To seek information relating to demographic data
* To seek information relating to skills and knowledge
* To seek information relating to organization-specific knowledge and experience

**Topic 12**

**[June 2017]**

**Recommend FOUR (4) measures of a user’s experience that should be included in a usability test of an information system’s interface. (4)**

* The interface should be aesthetically pleasing
* It should be enjoyable to use
* It should motivate a user
* It should engage a user
* It should be reliable

1. **Efficient interface design of an information system can bring benefits to an organisation. Outline FOUR (4) benefits. (4)**

* It can help to increase productivity
* It can reduce training costs
* It can reduce maintenance costs
* It can prevent user errors
* It can contribute to job satisfaction

1. **Outline TWO (2) tasks that a systems analyst performs when analysing the requirements for the development of a human computer interface. (2)**

* Production of a problem statement definition
* User analysis
* Task analysis

1. **[Sample] Briefly discuss the objectives of Heuristic evaluation. (3)**

**[March 2017] Outline FOUR (4) characteristics of Heuristic evaluation. (4)**

* It can be used to identify usability problems.
* It is not undertaken by users of the system being evaluated
* It is undertaken by an impartial evaluator.
* An observer answers an evaluator’s questions about the interface.
* An observer provides advice on using an interface.
* The evaluator states what they don’t like about the interface and their reasons why.

**[September 2016]**

**State THREE (3) features of cognitive walkthroughs. (3)**

* It is an informal method of evaluating an information system’s interface
* The usability of a system is inspected
* It measures how easy users find it to complete tasks.

**[September 2016]**

**Outline THREE (3) factors that determine the reliability of an information system’s interface. (3)**

* It functions as intended
* It contains no error
* It meets stated requirement organisation/ users/ stakeholders
* It meets expectations of an organisation/ users / stakeholders
* Security requirements are met.

**[September 2016]**

**Identify FOUR (4) empirical evaluation methods that can be used to evaluate the interface of an   
 information system. (4)**

* Observation
* Questionnaires
* Interview
* Focus Group

**[June 2016][September 2016]**

**Identify THREE (3) disadvantages associated with heuristic evaluation of a human computer   
 interface. (4)**

* Although usability problems are identified, there is not always explanation/adequate explanation of how they should be improved or corrected.
* Evaluators are not end users of the interfaces and therefore might not identify all problems or potential problems with usability.
* An observer answers an evaluator’s questions about the interface or gives advice on using it

**[June 2016]**

**Outline THREE (3) types of interface usability tests. (3)**

* A user is monitored by an evaluator at the same location
* A user is monitored by a remote evaluator
* Formative usability testing
* Summative usability testing

**[June 2016]**

**Identify FOUR (4) advantages of using a focus group to evaluate an information system’s interface.**

**(4)**

* It could save time/ be less expensive than undertaking individual interviews
* A wider range of information could be provided
* Detailed information could be obtained about the user’s perceptions and opinions
* It could provide clarification about various aspects of the interface/ issues with the interface.

**[June 2016]**

**Briefly explain what is meant by the term usability testing. (2)**

* It evaluates how easy it is to use an interface
* It evaluates how easy it is to learn how to use an interface

**[March 2016]**

**Identify THREE (3) usability goals that are required to be included in a test of the usability of an interface. (3)**

* Free from error
* Efficient
* easy to learn
* easy to recall
* easy to use

**[March 2016]**

**Briefly explain what is meant by the term cognitive walkthrough. (2)**

* It is an evaluation method that is used to inspect the usability of a system.
* It aims is to measure how easy users find it to complete tasks and subtasks.

**[Mar 2013]**

**Identify FOUR (4) aspects of an interface that are assessed using a heuristic evaluation. (4)**

* Simple language and directions
* Easily recalled
* Consistency
* Feedback
* Clearly marked exits
* Shortcuts
* Clear and relevant error messages
* Lack of errors
* Help features

**[December 2015 Sample]**

**Suggest THREE (3) types of user experience goals used to evaluate user interface design. (3)**

* Aesthetically satisfying
* Enjoyable to use
* Motivating
* Engaging
* Reliable

**[December 2015]**

**Recommend THREE (3) types of informal evaluation methods that can be used to assess the   
 interface of an information system. 3**

**[March 2016]**

**State FOUR (4) informal evaluation methods (not including heuristic evaluation and cognitive**

**walkthroughs) that can be used to evaluate an information system’s interface. 4**

* Heuristic evaluation
* Cognitive walkthroughs
* Predictive modelling
* Guidelines review
* Consistency inspection
* Critical event analysis
* Dialogue error analysis
* Usability testing
* Expert reviews

**September 2018**

**Question 1**

**City Entertainment Center is a company that has ten theatres in ten citites across the United Kingdom. Each theatre presents plays, music concerts and dance performances. The company offers a wide variety of entertainment, ticket prices are affordable and the location of each theatre is convenient. The company is well-known and the number of people visiting each theatre is increasing.**

**The company’s information system needs to be updated. Due to successful ticket sales there is sufficient funding to improve the system and the new managing Director wants you to undertake analysis of the information system and provide advice on tisdevelopment.**

1. **You have been instructed to undertake a feasibility study. Explain the purpose of a feasibility study and support your answer with FIVE (5) points. 5**

* It determines whether the project is economically feasible/cost effective/it identifies/considers the costs of system development
* It determines whether the project is technically feasible/it identifies if there are technical issues/constraints/ /skills training requirements/future demands
* It determines whether the project is financially feasible/it identifies if there are financial issues/constraints
* It determines whether the project is socially feasible/it identifies if there are cultural issues/constraints
* It determines whether the project is legally feasible/it identifies if there are legal/regulatory issues/constraints
* It determines the costs of development against the benefits of development/if the costs outweigh the benefits the project cannot go ahead/if the benefits outweigh the costs the project can go ahead

1. **There are a number of factors that you need to consider when you choose which type of methodology to use for analysis of the information system. Identify FIVE (5) factors that you should consider**.

* Whether technical aspects should be focused on/if a hard approach would be appropriate
* Whether human aspects/user needs should be focused on/if a soft approach would be appropriate
* Whether a combination of technical and human aspects/combined method would be appropriate
* The complexity of the current system
* The complexity of the human aspects/user needs
* The advantages of each method
* The disadvantages of each method
* The appropriateness of each method
* The costs associated with each method
* The delivery time associated with each method
* The size and complexity of a company

Question 2

**The Company’s information system processes requesets for tickets. The public can book tickets at each theatre, by telephone or via the company’s website. Personal data on staff, customers, performers and catering suppliers isprocessed and stored. The information system processes and stores data on customers payments, cancellations and refunds, payments ot performers, payments to catering suppliers and payments to the centre’s staff.**

**The informatin system needs to be updated and improved. It needs to be able to deal more effieiently with an increasing number of processing and adminstrative tasks. It also needs to be made more secure.**

**If you decide to use a soft approach to analyse the information sytem at City Entertainment Centre, you will need to produce a rich picture and a root definition. 8**

1. **Produce a rich picture of *City Entertainment Centre*.**

* Identification of the staff
* Identification of the customers
* Identification of performers
* Identification of suppliers
* Identification of Information system
* Identification of personal data of customers/staff/performers/suppliers
* Identification of financial data
* Identification of staff data
* Identification of administration data
* Identification of ticket bookings/in person/telephone/online
* Identification of ticket processing
* Identification of cancellations/refunds
* Identification of problems/issues/concerns
* Identification that aspects of the system are inefficient
* Identification that aspects of the system are Insecure
* Identification of staff roles/fears/opinions/expectations

**b). There are two types of root definition. Identify ONE (1) type and state the purpose of it. 2**

* A primary task root definition
* it focuses on system processes.
* An issue-based root definition
* it focuses on system problems

Question 3

1. **CATWOE analysis can be used to gather information about an organisation. Outline FOUR (4) elements of *City Entertainment Centre* that could be identified by CATWOE analysis. 4**

* Customers/clients associated with it
* Actors/agents associated with it
* Transformations/inputs/outputs/processes associated with it
* Worldview/internal/external factors/constraints associated with it
* Its owner/s
* Environment/economic. social, technological, ethical, political, legal, competitive, environmental, demographic factors associated with it

1. **Each of the elements that you identified in Question 3 a) can influence the development of an information system. Explain how THREE (3) of the elements that you have outlined in Question 3 a) might *negatively* influence the development of the information system at *City Entertainment Centre*. 6**
   * Customers/clients - might not be happy with a new information system

* Actors/agents - might not be happy with a new system
* Transformations - an updated information system might have adverse effects on system inputs, outputs and processes
* Worldview - factors inside/outside the company might influence the development of a new system
* Owners - might decide not to develop a new system/hold back development of a new system
* Environment - financial, legal and ethical factors might mean that improvements to the information system are expensive

**Question 4**

**The following staff work at City Entertainment Centre: managing director, administration manager, finance manager, marketing manager, stage manager, IT manager, secrurity manager, catering manager, cleaning manager, administratin staff, finance staff, catering staff, IT staff, set designers, performers, security staff, catering staff and cleaning staff.**

1. **Produce a stakeholder matrix for City Entertainment Center.10**

|  |  |
| --- | --- |
| High power, Interested people  Must be fully engaged and kept satisfied.  Managing director, administration manager finance manager, marketing manager, IT manager. | High power, less interested people.  Should be kept informed and satisfied  IT staff, administration staff, finance staff, stage managers, security manager, catering manager, cleaning manager |
| Low power, less interested people.  Should be spoken with and monitored.  Catering staff, security staff, cleaning staff. | Low power, interested people.  Should be kept informed and spoken with to ensure that they have no major concerns.  Set sesigners, perfrmers, customer/the public. |

**Question 5**

1. **Object oriented analysis is an alternative methodology to soft systems methodology. Compare the two methods and support your answer with TWO (2) points on object oriented analysis and TWO (2) points on soft systems methodology. 4**

***Object oriented analysis***

* If OOA is used data and processes are combined into objects
* OOA focuses on technical aspects of a system
* OOA considers the relationships between objects, classes, etc.
* Tools used in OOA include functional models, activity models, etc.
* If OOA is used systems can be developed rapidly
* If OOA is used systems can be developed cost effectively

***Soft systems methodology***

* If SSM is used data and processes are considered separately
* SSM focuses on user/people aspects of a system
* SSM considers wider issues in a social context such as the usability of a system, job satisfaction, the structure of an organisation
* Tools used in SSM include rich pictures, root definitions, concept diagrams
* It could take longer to analyse a system using SSM
* It could be expensive if SSM is used

**b). If you decide to perform object oriented analysis of the information system at *City Entertainment Centre* you will need to produce an activity model. Produce an activity model that illustrates ONE (1) business activity at *City Entertainment Centre*. Use the information provided in Question 2.**

* The business activity should be stated
* Business activities should be illustrated/bookings/sales/administration/advertising
* Processes should be illustrated/ticket booking/ticket sales/data processing/cancellations/refunds/payment to company/payments to staff/payments to performers/payments to catering suppliers
* Events that initiate actions/decisions should be illustrated/customer requests ticket/cancels/refund offered/payment
* The flow of events should be illustrated
* Accurate notation should be used

**Question 6**

1. **Explain SIX (6) items of information about *City Entertainment Centre* that you could find if you use ETHICS. 6**

* Efficiencies/Inefficiencies in the information system
* Interaction between users and the information is effective/needs to be improved
* Job satisfaction/lack of job satisfaction
* Good morale/lack of morale
* Good communication/lack of communication
* Sufficient staff training/lack of staff training
* Interesting tasks/boring/repetitive tasks
* Jobs enable staff to use and develop their skills, knowledge/do not enable staff to use and   
  develop their skills, knowledge (Knowledge Fit)
* Jobs enable staff to further their achievements, recognition, advancement, status/do not   
   enable them to further their achievements, recognition, advancement, status (Psychological   
   Fit)
* Jobs are demanding, fulfilling/undemanding, unfulfilling (Task-Structure Fit)
* Jobs offer financial rewards, incentives, acceptable work, supervisory controls/do not offer financial rewards, incentives, acceptable work, supervisory controls (Efficiency Fit)
* Staff values/philosophy are compatible with those of the managing director/company/ are   
  incompatible

1. **Explain FOUR (4) potential problems that might prevent you from using ETHICS effectively at *City Entertainments Centre*. 4**

* Staff might be reluctant to participate/contribute
* Staff might be unable to explain what they want from a system
* Staff might be unable to participate/contribute due to work commitments/time commitments
* Staff might be concerned about the consequences of stating their opinions
* Staff might not be interested in participating/contributing
* It could be difficult/time-consuming to manage
* It could be difficult to complete

**Question 7**

1. **Identify SEVEN (7) strengths of *City Entertainment Centre* that could be discovered if you undertake a SWOT analysis. Use the information provided in Question 1.**

* A wide variety of entertainment
* Affordable ticket prices
* Convenient location of each theatre
* It is a well-known company
* Increasing number of people visiting each theatre
* High number of ticket sales
* Sufficient funding
* The Managing Director is forward thinking
* The Managing Director wants the information system improved

1. **State THREE (3) other aspects of *City Entertainment Centre* that you will find if you undertake SWOT analysis. 3**

* Weaknesses/inefficient information system/insecure information system/constraints   
  uncovered by CATWOE/issues uncovered by stakeholder analysis
* Opportunities/ good reputation which could be used to establish a competitive advantage   
   OR to expand OR to increase sales/good locations which could be used to meet new   
   requirements of audiences OR to expand
* hreats/problems arising as a result of an insecure information system/problems arising as   
  a result of an inefficient information system/competition from other theatres

Question 8

1. **Aspects of society could have a negative influence on the company, which in turn could affect the development of the information system. Identify FOUR (4 ) aspects of society that could have a negative influence on *City Entertainment Centre*. 4**

* Advertising/marketing/publicity
* Lifestyle trends
* Consumer attitudes and opinions
* A brand/company/technology image
* Consumer buying trends
* Fashion and role models
* Major events
* Cultural factors
* Ethical factors
* Environmental factors

1. **Recommend THREE (3) solutions to overcome negative impacts of society on *City Entertainment Centre*. 3**

* A requirements specification should be produced that identifies/documents the negative influences of society
* The requirements specification should identify solutions to the negative influences   
   identified/documented
* It should be agreed that the identified solutions are feasible

**State THREE (3) influences, in addition to society that could influence the company and the development of its information system. 3**

* Economic influences
* Technological influences
* Political influences

**Question 9**

**You would like to observe the administration staff using the information system at *City Entertainment Centre*. Evaluate the use of observation as an information collection method and explain FOUR (4) advantages and FOUR (4) limitations of using observation as an information collection method. 8**

***Advantages of observation***

* It is a direct method of collecting information about a system’s users
* It is a direct method of collecting information about a system’s user’s work tasks
* It enables access to users when it might not be possible to use interviews or   
  questionnaires/users are available
* It can aid in-depth understanding
* The time it takes to perform tasks can be measured
* It can aid accuracy
* It can identify problems
* It is useful method if there is no documentary evidence available

***Limitations of Observation***

* Opinions cannot be observed
* It is a time-consuming method
* A solution to an identified problem cannot be obtained just by observation
* Users might feel uncomfortable if they are observed
* Users may respond differently if watched by an observer
* An observer might get in the way of users/distract users
* Some people may be nervous and make errors that they would not normally make
* It is not always an efficient method for capturing quantitative data for analysis

**b). dentify TWO (2) methods, other than observation and soft system techniques, that you could use to collect information at the company. 2**

* Interviews
* Questionnaires/surveys
* Focus groups
* Documentation

Question 10

1. **Explain FIVE (5) benefits to *City Entertainment Centre* if the interface of the information system is improved. 5**

* Data processing could be performed more efficiently
* It could increase efficiency/productivity/staff could be more
* productive
* It could be easier for staff to use
* Staff could make less errors/less errors in data processing
* Increased efficiency would please customers
* It could prevent user errors
* It could increase job satisfaction
* It could reduce maintenance costs

1. **Identify FIVE (5) features that the interface should provide to ensure that staff can use it without difficulty. 5**

* It is user friendly/easy to learn/easy to use/intuitive
* It provides clear, simple features/instructions
* It provides instant feedback/clear feedback
* It offers guided actions
* It is accessible
* It is consistent
* It is reliable
* User demographics have been considered